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ABSTRACT

Five articles on higher education in Australia and New Zealand are presented, along with two review articles. "Australian Higher Education Research and Society. Part I: Post-War Reconstruction and Expansion, 1940-1965" (D. S. Anderson and E. Eton) is a review of research on higher education in Australia and New Zealand since World War II. "Student Motivation and Study Strategies in University and College of Advanced Education Populations" (J. Biggs) describes research on three major motives and three cognate learning/study strategies for two sectors of tertiary education. "Increasing Personal Efficiency: A Case Study" (H. E. Stanton) demonstrates how a poorly functioning academic was helped to successfully reorganize his life and work using time-management techniques. "Learning to Teach" (S. J. Prokhovnik) suggests that lecturing is an art demanding imagination, scholarship, application, and enthusiasm. "Some Alternative Entry Characteristics as Factors in Tertiary Success" (J. R. Lublin) describes research that investigated entry characteristics associated with graduation 5 years later. Finally, review articles of nine books are presented. (SW)

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HIGHER EDUCATION RESEARCH & DEVELOPMENT

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Editorial

In his critical review of British journals which specialize in studies of higher education, Boris Ford, writing in **The Times Higher Education Supplement** (21.3.80), rather gloomily concluded that ". . . there don't seem to be many periodicals of higher education which are consistently stimulating, exploratory, cogent, authoritative, consequential and enjoyable . . . In general, articles on higher education are parochial and undistinguished." Recognizing that this could also be said of the journals associated with just about every other field of inquiry, most of us would probably admit to its truth while at the same time claiming that our own writings are almost always stimulating and memorable.

Part of the explanation for the rather dull character of much of the literature undoubtedly lies in the fact that there is far too much of it and this, in turn, has arisen from the association of quantity of publication with advancement in the academic profession. A further explanation, however, may reside in the lack of encouragement for authors to write in a style and about topics which mesh with our concerns about higher education. It may be, of course, that there is only a handful of people who have anything of consequence to contribute and who are also able to write in an engaging manner, but if this were true there would be no point in launching another journal.

The focus of this journal is upon change, that is, with research and development which extends our understanding and thus justifies what we do or indicates what we ought to be doing, and with those developments in educational practice which explore or exemplify more satisfactory ways of conducting the enterprise of higher education. Such a focus will accommodate quite a broad range of topics and approaches and the first issue has been designed to illustrate this and so encourage authors to submit appropriate material for future issues.

Articles which critically review an area of research or development have always been of crucial importance in the journal literature. By assembling and evaluating a wide range of scattered and often inaccessible publications, discerning trends, and identifying neglected problems which could profitably be investigated, such articles are of the greatest value to the academic community. Of necessity, they make very heavy demands of authors and there is thus a quite natural reluctance to embark upon the preparation of them. For this reason they are much sought after by editors. Anderson and Eaton have produced a major review of post-war research into higher education in Australia and New Zealand, the first part of which appears in this issue.

Biggs' paper reports on his continuing series of empirical studies of student learning by presenting data which compares the motivations and study strategies of students in universities and colleges of advanced education.

Stantor throws helpful light on a daily problem which faces all of us, namely, how to make more effective use of our time in order to achieve the goals which ought to receive priority in a crowded professional life. In a very personal account of the progress of an academic career Prokhovnik reviews his development as a teacher in a manner which speaks directly to each of us.

Much of our research effort goes into producing data which can be used by others to construct an edifice which often takes many years of patient work to complete. The building blocks can often be presented quite briefly in print with the author making further details available to those most concerned to use them. Lublin's article is an example of a research report of this type and we hope to be able to publish a substantial number of these.

Readers of journals frequently turn to the book review section before examining any of the papers. Our policy will be to publish review articles which survey recent work in a particular area (the piece by Thiele provides an example of reviewing work of this type) as well as notices of new books. In addition, we plan to publish reviews of books which have had a continuing influence upon the development of theory or practice. Suggestions for reviews of either type will be very welcome.

These days all publishing activities face rapidly rising production costs. The very existence of many journals is threatened by the increasing expense of printing and distribution. One means of containing these costs is to make use of camera-ready copy and it has been decided to produce the journal using this technique. This places the responsibility for creating perfect copy upon the author as no proof-reading is undertaken by the printer or editor. **The Times**, once without peer in its high standard of proof-reading, has unfortunately become a notorious back-slider and no longer serves as an example. We feel confident, however, that our authors will maintain the highest standards in their attentiveness to the need to eliminate errors.

The other responsibility which authors will be asked to carry is that of ensuring that their final copy arrives in the editorial office in time to meet the deadline. The classic example of an author who almost always failed to meet deadlines was Professor Rayleigh, the noted physicist. His article on "Light" for the **Encyclopedia Britannica** was not ready in time for the appropriate volume so it was deferred to come under "Optics", and then under "Undulating theory of light". He finally made it with "Wave theory of light".

All journals are a collaborative venture between authors, readers and editor. If successful, their joint efforts progressively shape something which is distinctive and valuable. You are warmly invited to share in this task.

J. P. Powell

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Australian Higher Education Research and Society

PART I: POST-WAR RECONSTRUCTION AND EXPANSION: 1940-1965*

D. S. Anderson and E. Eaton
Australian National University

ABSTRACT

This is the first part of a review of research on higher education in Australia and New Zealand since World War II. The review is organised around four themes which more or less characterise higher education and society in the successive decades since 1945: post-war reconstruction, rising expectations and expansion, the search for equality and the end of expansion. Much of the first post-war research was motivated by a concern for efficiency, that is, predicting those students who would benefit from higher education. Later, researchers began to question the representativeness of participation in higher education and the nature of the education process. During the most recent decade some of the research questions are reminiscent of the late 1940s, that is, how can the efficiency of higher education be improved? However, whereas expansion and optimism characterised the first thirty post-war years, the context now is one of contraction and some pessimism.

D. S. Anderson is a professorial fellow in the Sociology Department of the Research School of Social Sciences at the Australian National University. His interest in secondary and post-secondary education has resulted in some books and monographs, nearly all in association with other scholars. The titles include **Regional Colleges, Access to Privilege, Communities and Colleges, Transition from School, An Inventory to Measure Students' Attitudes, The Development of Student Teachers, Schools to Grow In,** and **Youth, Transition and Social Research.** He is currently engaged on a study of the Professions in Australia, and with Cath Blakers directs the National Clearinghouse on Transition from School.

E. Eaton is presently working as a research assistant in the Sociology Department of the Research School of Social Sciences at the Australian National University. She held a similar position at the Higher Education Advisory and Research Unit at Monash University, and co-authored several HEARU publications, including the book **Mature Age Students in Australian Higher Education.**

* Part I includes the introduction to both parts and a review of research until 1965. Part II, to be published in the next issue, reviews the period 1966-1982.

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INTRODUCTION

A review of research on higher education embracing a period of nearly 30 years has to select from among thousands of studies. In order to guide our selection and reduce the task to manageable proportions we adopted three strategies. First, since research questions do not emerge immaculate from a value-free ether but reflect the interests of the scholar and the times, we identified what appeared to us to be the main themes connecting higher education and society in each of the four post-war decades. Secondly, as a check on our own biases, we wrote to all professors of education, heads of education research units and chairmen of co-ordinating authorities in Australia and New Zealand,(1) asking which studies they considered to be most important and why. Third, with few exceptions, we restricted our review to published reports. Some comment on each of these approaches will be of assistance in showing how our selection was shaped.

The Themes of the Review

The four major themes which characterise Australian higher education and society since World War II are post-war reconstruction, rising public expectations and expansion, the search for equality and the end of expansion. The first and last of these themes correspond closely in time to the first and final decades of our review period. Rising expectations and expansion characterise the second decade after the War although the theme can be identified earlier and continued until 1973. Concern for equality of opportunity in its various meanings is of course present throughout the entire period; nevertheless it peaked about 1970 in the middle of our third decade, when the student revolt was at its height, when it was becoming clear that expansion would not democratise the campuses, and just before governments began handing down guidelines causing higher education to look inward and worry about survival.

The period 1945-1955 was one of post-war reconstruction in which an isolated nation with a rural economy began to lessen its dependence on overseas ideas and establish a more diversified economy. Universities, which had been seen as institutions for national purposes during wartime, became larger due to the flood of ex-service students, and more intellectually exciting as research became an established component of academic activity. Education research in this period reflected the demands of the times which, so far as undergraduate education was concerned, meant identifying the talented so that they could be recruited into training for the professions and posts of leadership required by a nation intent on social and economic reconstruction. The researchers, often beginning with the simple question "who has the talent?", more often that not ended with a set of more complex questions about the process of education. These were to be taken up in the 1960s and 1970s.

By 1956 a profound change was evident in education in Australia and New Zealand. For the first time a majority of the population had come to see qualifications from school and post-school as the major means of enhancing life chances, for their children if not for themselves. Participation rates in secondary schools escalated and universities, scarcely over the shock of the ex-service invasion, were subjected to unprecedented pressures from young qualified school leavers, many of them recruited by education departments to staff the burgeoning secondary schools. The Commonwealth government, which had begun to assist universities during the war, now started to assume major responsibilities. In Australia two major enquiries, chaired by Murray (1957) and Martin (1964) respectively, established patterns which would persist for the rest of the century: increased government funding, a two-part structure for Australian higher education and national co-ordinating mechanisms which, for a decade or two, were to be relatively independent of government.

Universities were forced to restrict entry and in many faculties there were quotas which were filled according to "order of merit", since there was not the room for all qualified applicants. Education research, somewhat reluctantly, had to assist in devising equitable means of selection for these quotas. It was apparent to many researchers however that the important question lay elsewhere, and reports began to appear on the educational process, student motivation, student welfare and, to a lesser extent, teaching methods.

By 1966 the framework for expansion was established. The number of universities was to treble from the pre-war six; the greater part of the new educational burden, however, was to be carried by a new system of colleges of advanced education which incorporated some existing institutes of technology, other new institutions and, after 1973, former teachers colleges. Co-ordinating agencies kept the two sectors distinct and directed the balance of development within and between systems. There were obvious differences between universities and CAEs, not merely in purposes and the extent of external control, but also among the social origins of students and the courses which were offered (universities generally kept the more prestigious professional schools). Fierce debates took place concerning the two-part system of higher education in which discussion of educational aims, equality of educational opportunity, parity of esteem and intellectual standards was frequently very confused.

"Equality" was a slogan of the decade. Despite the enormous expansion universities appeared to be as under-representative of all classes of society as they had been in the past. Demands for equality took some bizarre forms; in Victoria a secondary teachers' union asserted that entry to higher education should be by ballot rather than intellectual attainment; and arising from the turbulent student activism were demands for abolition of examinations which, it was argued, were a means of social control.

Equality, in the sense of equal representation of all main social groups, is reflected in education research of the period and, for the first time, precise accounts became available of participation and non-participation by various social, ethnic, sex and age groups. Furthermore the problems of those students from "disadvantaged" backgrounds who do gain entry do not cease at that point, because environment affects academic performance. This view led researchers to focus on the process of education in universities and colleges. Questions about the inter-relationship of student characteristics, teaching methods, curriculum and environment had emerged from earlier studies; it was in the latter part of the 1960s however that more complex research models of teaching and learning appeared.

The 1950s and early 1960s saw the establishment of student services in counselling, health and housing, even though there had been suggestions for university teaching centres these were not to come until later. Perhaps it was easier or less threatening to set up agencies to help students than it was to establish centres which might ask questions about their teachers. By 1975, however, most universities and many CAEs had education teaching and research units and these were responsible for the continuing debate on ways of improving teaching and learning.

By 1976 it was apparent that the end of the golden age of higher education was at hand. On any reasonable account the expansion could not have been expected to continue at the earlier rate; however what could have been a less painful adjustment to steady state was aggravated by the economic downturn and the declining birthrate. At the same time as reducing public expenditure generally government appeared particularly unsympathetic to higher education, perhaps because of unfulfilled expectations, perhaps because criticism of public policies emanating from the academy fired anti-academic prejudices. Within universities and colleges, over half a dozen years, the climate changed from optimism and expansion to one of contraction and accountability.

Some of the emerging research questions of the 1980s are reminiscent of those of the 1940s and 1950s in that manpower issues have returned. The difference however is that there is now some scepticism about the "usefulness" of certain classes of graduates and assertions that curriculum should be more directly relevant to needs in the economy. Such issues had barely surfaced in more prosperous times.

The long upward trend in the secondary education participation rate has plateaued, and in fact reversed for boys. On top of this the demand for higher education from qualified school leavers had inexplicably lessened and, for the first time in 40 years, universities and colleges of advanced education are anxiously looking to their sources of students. To an extent the young have been replaced by "mature age" students.

Education research within universities is reflecting these changes with questions about accountability, how to adjust to steady state conditions, causes of voluntary withdrawal and the characteristics and needs of older students.

Survey of Educationists

Our letter to 106 educationists in Australia and New Zealand requested that they list the three or four published research studies which in their opinion were most significant for theory, practice or action. Replies were received from half of the 35 heads of research units, from one-quarter of the 60 professors of education and one-quarter of the "heads of co-ordinating agencies".

It was apparent from the replies that our respondents found the question difficult. Many said this and a few said that there were no outstanding studies; certainly there is no agreement concerning the important studies. Of the 200 or so authors listed none received more than seven mentions, and of the 50 topics only one - studies of academic progress - received as many as nineteen mentions; research on the characteristics of students, particularly the social composition of entrants to universities and colleges, was the second most frequently mentioned area. Overall the feeling seems to be that the contribution of research on higher education has been generally disappointing, partly because the field is still a relatively new one but mainly as a result of the piecemeal ad hoc nature of most of the research. As one respondent put it, "funds are needed to allow time to consider and analyse major problems".

To understand the reason for this lack of agreement on what has been important in higher education research it is necessary to appreciate the nature of publication. Many reports - perhaps 90 per cent in our estimation - are semi-published; that is, they are printed by the author's institution and distributed mainly either within that institution or among an informal and limited network of colleagues working in similar areas.

The advantages of this are, of course, that the journals and publishers' lists are not even more overloaded than they are at present. Furthermore, semi-publication has the advantage of speed - a report can be circulating within a few weeks of the writing - and precise targeting to the intended audience. In fact a good deal of semi-published research may not have the generality of application which justifies formal publication. Nevertheless there remains a substantial body of highly competent research directed to important questions which is not easily available to the community of scholars or to policy-makers. The research itself suffers in not being subjected to traditional academic scrutiny, criticism by peers, and the contribution which research could make to understanding and progress in higher education is muted.

With some exceptions the studies which are reported in this review have been published in established professional journals or by independent publishers. They should therefore be readily available to readers with access to library systems.

POST-WAR RECONSTRUCTION: 1945-1955

Background

The Second World War had precipitated the Commonwealth Government into a much closer relationship with the universities. Before the war all levels of education were regarded as a State matter, with the universities relying almost entirely on State grants, student fees and endowments. The Commonwealth's contribution was mainly concerned with the provision of research grants for work in the natural sciences. However at the outbreak of the war these grants were relatively insignificant and added virtually nothing to the universities' general reserves. At this time almost two-thirds of the Commonwealth's expenditure on education was devoted to research, but the bulk of these funds went to the Council for Scientific and Industrial Research (as the CSIRO was then called) which administered the university grants.

It was the universities' practical value in the war effort which caused the Commonwealth Government to see them as instruments of national survival. After Japan's entry into the war in December 1941, a liaison bureau was set up to speed the flow of scientific information from the six universities to Commonwealth officers; academics also played an important role in the Public Service and in the scientific manpower advisory committees which were set up about the same time. However, it was personnel policy and funding for research which were to transform universities into major institutions in Australia's scientific, cultural and professional life.

Under wartime manpower regulations students in medicine, engineering and the natural sciences were reserved from military service; economists, statisticians, educationists and psychologists were also regarded as essential to the war effort although they were not reserved from enlistment.

In this context the fall in enrolments which occurred around 1940-41 was a matter of great concern, and the Government took immediate action to increase the universities' "productivity". The Universities Commission (not to be confused with the body of the same name which was established in 1958) was set up in 1942 and the following year saw the introduction of the Commonwealth Financial Assistance Scheme to encourage the less well-off students to undertake degree courses. Students entering under the quota scheme, which operated for the reserved faculties between 1943 and 1945, became eligible for Government assistance. "This was the beginning of both competitive selection, which excluded some qualified applicants, and living allowances for students in Australian universities" (McDonell, 1975: 8).

The Commonwealth Government's growing interest in research activities, also greatly stimulated by the crisis of war, led to several critical interventions which contributed to university resources. In 1941, research grants were substantially increased and were extended to university research in the social sciences (these grants were administered by the Department of Post-War Reconstruction). The Commonwealth Office of Education (COE), established in 1945, was required "to advise the Minister of Post-War Reconstruction on matters relating to education ... undertake research relating to education [and] provide statistics and information relating to education required by any Commonwealth authority" (Education Act (Commonwealth) 1945). (Commonwealth money had also kept the ACER operating when funding by the Carnegie Corporation of America ceased in 1943; all six States contributed along with the Commonwealth only from 1946.)

Recommendations of a Commonwealth inter-departmental committee (Walker, 1945) set up in 1943 to cope with war-time educational problems and to rationalise the Commonwealth's educational commitments, led to the establishment of a seventh university, the Australian National University, "whose chief emphasis would be on advanced research" (National University Act (Commonwealth) 1946). There would be no students apart from Ph.D scholars who would do their theses in the general research

area of their departments.

Research grants to universities were again substantially increased in 1946 in recognition of the need ANU would have for graduates suitable for Ph.D studies, and the needs of CSIR and the Department of Supply for graduates with some background in research. The Universities Research Grants Committee (not to be confused with the Australian Research Grants Committee established in 1965) was set up in 1946 to administer these grants.

On recommendations made by the Defence Scientific Advisory Committee, the URGC made a survey in connection with a plan for the training of an adequate number of research workers in the faculties appropriate to defence. In the same year (1948), the Minister for Post-War Reconstruction ordered a survey of the Commonwealth's needs in relation to graduates trained in research methods (COE, 1948).

After the war universities were invaded by vast numbers of ex-service students; some were resuming courses, but most were new students attracted by generous Commonwealth Reconstruction Training Scheme grants. Many of these new students in ordinary circumstances would not have contemplated higher education. By 1947 universities were bursting at the seams - army huts followed the ex-servicemen to the campuses and Melbourne University opened a new branch in the ex-RAAF base at Mildura.

The winding down of the CRT scheme in the 1950s meant a loss of revenue at a time when the universities were already hard-pressed to meet spiralling costs. Their approach to the Government for financial support led to the passing of the States Grants (Universities) Act in 1951; the Commonwealth's commitment to the universities was thus established as a permanent feature of the Australian higher education scene.

Other wartime and immediate post-war developments in higher education included the introduction in 1951 of the Commonwealth Scholarship Scheme which absorbed and extended the earlier Commonwealth Financial Assistance Scheme, the Commonwealth South and South East Asian Scholarship and Fellowship Schemes (in 1949), the establishment of the N.S.W. University of Technology (in 1949) and the Newcastle University College (in 1951), and, soon after the war, the introduction of the Ph.D degree.

This period of national reconstruction contributed to a major expansion in Australian higher education. University and teachers' college enrolments almost doubled between 1945 and 1950, and, although few guessed it at the time, high growth rates were to be sustained for two more decades.

Before the war the universities were teaching rather than research institutions and were preoccupied almost exclusively with undergraduates. As Partridge (1968) puts it:

> "... pre-war Australia [had] attached little importance to advanced education. The energy of the society was concentrated first on providing universal elementary education; later, ... on providing secondary education for a small minority of adolescents; and again in providing opportunities for university education for an even smaller minority, mainly in order to man the teaching profession and the other 'learned' professions (p. 123)".

The Commonwealth intervention, in extending graduate teaching and research, had the quite practical objective of meeting national needs. Sanders (1950) comment at the time was:

> "The Commonwealth ... has been motivated throughout by intensely practical considerations, including defence needs, industrial, scientific and agricultural development, and the necessity to render Australia relatively independent of other countries in the matter of higher scientific training (p. 47)".

Whatever the Government's intention might have been, the changes altered the character of Australian universities. They became intellectually more exciting places; a commitment to scholarship became apparent in almost all disciplines, not just those where research had a direct application to national problems.

The Research Studies

The Commonwealth's wartime interest in professional manpower began an era of government involvement with higher education. In this early period the national need was for graduates and this objective shaped the main issue for higher education researchers: What could be done to make universities more efficient? Head counting made it obvious that in some subjects the relatively large numbers embarking on studies dwindled due to dropping-out or failure in examinations. Although the extent of student failure had received some critical attention before the war (Sanders, 1948) the post-war climate lent an air of emergency to the problem.

Since failure was primarily viewed as a sign of students' intellectual inadequacy rather than as the outcome of poor teaching, research studies cast the problem as one of prediction and selection: the task was to identify academic talent among prospective students and admit only those who were going to pass. Thus the first large-scale study carried out by the new Commonwealth Office of Education was to improve selection in Australian universities and teachers' colleges (COE, 1947).

A problem very closely related to that of picking those who would pass was the need, in certain faculties, to select from among an excess of qualified applicants. Before the war successive examination barriers in secondary school had effected most of the sifting of students well before the time of entry to university (McDonell, 1975). The immediate post-war period saw the beginning of the rise in secondary retention rates and serious doubts about whether all who passed the final school examination hurdle had the ability for higher education.

In New Zealand similar doubts were being voiced and in 1954 the New Zealand Council for Educational Research was asked to carry out an investigation into the problem of selection and prediction to see whether it would be feasible to restrict admission without loss of "output". The first report of this investigation (Parkyn, 1959) was prefaced with a terse observation from Sir George Currie which reflected influential opinion in both countries at the time:

> "Since ... university education is expensive, and since the state in many countries, as in our own, has accepted the responsibility of finding most of the money for running the universities - it is essential that this public money be spent only on those who are likely to benefit from university education (p.V)".

Later still, when it was obvious that the demand for higher education was not going to stabilise, but would continue to increase into the '60s, the universities had to decide whether they should grow larger or restrict the increase of entrants in a way which would not proportionately decrease the output of graduates (McDonell, 1975 - the comment is made in reference to the situation in New Zealand but seems applicable to Australia as well).

Hohne carried out the ACER's investigation of the special wartime quota system which had as its explicit purpose the production of the maximum number of graduates in the minimum number of years required to complete their degrees (Hohne, 1955: 126) and to subsidise only those students who were going to pass. His sample comprised the 1943 and 1944 intakes (selected on the basis of School Leaving results) to the Faculties of Arts and Science at the University of Melbourne. A battery of psychological tests was administered to both groups to see whether results from these alone, or in conjunction with School Leaving results, could predict academic success better than the latter.

This quest for the philosopher's stone, the first of many, was disappointing. Psychological measures did not prove to be superior in differentiating those who would pass from those who would fail: "Entrance score - or the level of attainment reached in secondary school - was the best single predictor of first year success, with the tests trailing far behind; to a lesser extent ... it was also the best predictor of success in later years" (Hohne, 1955: 126). Furthermore, it was apparent to Hohne that:

> "'More or less' success at the university does not seem to depend very greatly on the possession of 'more or less' intelligence (or higher or lower entrance score) but on factors such as interest, study habits, personality, socio-economic factors, etc. Intelligence is clearly a necessary, but not a sufficient condition for success (p. 40)".

Despite their failure to predict he felt that the psychometric tests could serve a useful role in guidance and counselling at both the secondary and tertiary levels and in selecting students entering under Adult Matriculation and cadet training schemes (1951: 148).

There were some unexpected findings from the analysis and Hohne followed the leads. Both intakes, particularly the 1944 group, had an average scholastic achievement far superior to that of any comparable group before the inception of the quota scheme; they were also well above average in IQ. Nevertheless, despite this improvement in "quality", it was found that in all faculties except Medicine and Dentistry a majority of these selected entrants took at least two years more than the prescribed time to graduate, or failed and abandoned their courses. Thus the objectives of the wartime selection scheme were scarcely achieved (1955: 126). Furthermore, despite an increase in entry standard between 1943 and 1944 there was no improvement in the overall graduation rate in Arts - 65 per cent of the 1943 group, and 62 per cent of the 1944 group had graduated by 1950 (1951: 41). Something odd was going on in the universities.

Studies of pre-war, wartime and post-war statistics of the University of Western Australia's first-year courses had also found that pass rates appeared to be unrelated to changes in entry standards (Sanders, 1958).

Hohne inferred from his results that failure rates were determined by something other than academic ability. In physics and chemistry (both critical subjects in science and to engineering courses) considerable proportions were being failed in second and third year. These were students who had survived a high first year failure rate and had also obtained good honours in their qualifying examinations. Olsen's study of comparative pass and failure rates at the universities of Queensland, Sydney and Melbourne (reported in Sanders, 1958: 20) also showed that progress rates in several faculties could be determined by the arbitrary standards of an examiner in a particular subject. Often a minor subject with a low pass rate could retard a large number of students in a course because academic progress from one year to the next required a clean record. Hohne (1955) suggested that, as well as arbitrary fluctuations in standards, other causes of failure were inadequate first-year instruction, inefficient first-year examinations, or extremely high level demands in later years; whichever it was, Hohne argued, the remedy lay within the university itself. The question was beginning to change from "What's wrong with the students?" to "What's wrong with the process?".

Hohne came across one interesting background correlate in his data. Aggregate university performance was associated with type of secondary school: "Students enrolled from non-Catholic private schools were most successful in Arts courses, those enrolled from Catholic schools were considerably less successful than either (state or non-Catholic) ... the situation in Arts prevailed even more markedly in the scientific faculties" (1955: 109). The numerous possible explanations of the association were not tested, rather critics at the time were inclined to accept at face value the suggestion that Catholic education was inferior. Catholic education authorities were stimulated to commence a large scale survey of students at the University of Melbourne (Ryan, 1967).

Sanders (1948) also became interested in social questions and looked at the effect of wartime selection on the social and geographic composition of the study body as well as on academic quality. He reported some increase in educational opportunity at the tertiary level for the middle and lower classes, although the overall proportion of the population attending university remained low by comparison to other English-speaking countries such as the United States and New Zealand (McDonell, 1975: 4). Insofar as school background is concerned Sanders commented:

> "... it would seem that at normal times, the tendency of students from various types of secondary school to enter scientific faculties ... is determined by the economic position of the parents and partly by the type of schooling, whether Government or private, available at the secondary stage (p. 129)".

Hohne was much more forthright in reporting his finding that private non-Catholic schools were the main recruting grounds for university undergraduates. Despite the fact that these schools accounted for only a small minority of secondary students, they accounted for around half of the full-time Arts intake; Catholic students were more likely to be part-timers.

At this time the matter of social background was important mainly insofar as it related to academic success. The study by La Nauze, published in 1940, is an exception in that his primary concern was equality. After investigating the effect of social background on participation in university education in South Australia in the 1920s and 1930s, La Nauze stated:

> "There is no need for a statistical inquiry to prove that there is considerable inequality in the opportunity to acquire education beyond the minimum school-leaving age; nor to establish that this inequality is correlated with the level of income. But there is need to replace impressions with exact information; and more important to analyse the effects of inequality. It may then be possible to determined the stages of educational life at which social policy could most usefully be applied to counteract it, if this is considered desirable (p. 31)".

It was only in the late 1960s that the problem of differential participation of various social groups in higher education began to be seriously tackled by research workers as a question of social justice.

Hohne's investigation had also provided the only detailed study of part-time students to that time. Part-timers comprised more than one-third of all students, but they were shadows appearing briefly in the evening and scarcely noticed in official reports. The graduation rates of such students were described as "appallingly small". By 1950, only 20 per cent of the Arts students originally enrolled part-time had graduated, compared to 63 per cent of those originally enrolled full-time. The finding appeared to apply in even greater force to the science faculties. Hohne concluded that "the sooner a student who began a part-time course was able to change to full-time study, the greater his chance of graduating" (1955: 63).

When reasons for withdrawal were examined it was found that about 12 per cent of each Arts intake had left the university for reasons other than clear-cut failure. In summing up the findings of the Melbourne study Hohne (1955) stated:

> "The final conclusion regarding the influence of prediction and selection upon subsequent university success was that in most courses even the most rigorous university selection, based upon the most powerful selection tools, would not bring about any appreciable diminution in university failure unless it was preceded by fundamental changes in the outlook and policies of university

> examiners - and that, when the latter happened, the additional benefit to be derived from the former would not warrant the extra effort involved in its implementation (p. 127)".

Much the same point had been made by Sanders (1945) in the first research report published by the Commonwealth Office of Education. Having studied the problem of pass and failure rates in all the Australian universities, he noted their tendency "to conform to the statistical practice of passing and failing about the same proportion of students year by year" (p. 125).

Sanders' studies in selection (1942, 1943, 1948, 1961) at the University of Western Australia supported the findings of the Melbourne study. In an extremely thorough investigation of the 1947 student intake, Sanders (1961) attempted to analyse some of the academic variables by studying graduation and failure-wastage rates in relation to psychological test (including the B40 intelligence test) scores and entrance examination performance. Like Hohne, Sanders' final conclusion was that none of the measures taken at the point of entrance to the University, nor any combination of them, provided a predictive value which would significantly improve the success rate of first year students.

Correlations of students' age and performance cast further doubt on the view that achievement in university was simply a matter of academic ability. Despite the fact that the ex-service students (5.5 years older, on average, than the rest of the sample) appeared to be weaker academically than the students entering straight from school, they performed better in the Humanities and social sciences (Sanders, 1947, 1961). And in one of the first N.S.W. investigations, a study carried out at the University of Sydney, the only Australian university which did not have a minimum age of entry, found that while younger students were most successful, those aged 24 and over tended to perform better than the "middle" group, aged 18 and 19 (Philp and Cullen, 1955a, 1955b).

The relationship between age and academic success received (relatively speaking) almost as much attention in the late '40s and early '50s as it was to attract in the '70s when mature-age entry gained prominence. The good academic showing of the ex-servicemen led to curiosity about age and achievement and some questions as to whether the very young students might be poor academic risks on account of immaturity. Earlier Sir Eric Ashby, in a 1944 ACER publication, had given figures to illustrate a "dangerous drift toward the cradle" in the universities.

Summing up the results of his own investigations in selection and prediction, together with those reported by other research workers in Australia, Britain and the United States, Sanders concluded that the prediction of academic performance was imprecise and that the best basis was prior performance. Like Hohne, who had also started with a simple psychometric model, he too, concluded that better examination results required action within the university rather than more stringent selection. "No amount of improvement in the entering study body will guarantee a higher university pass rate unless the staff ... allows the change" (1957: 150). Later, when discussing the implications of the report of the Government Committee on Australian Universities (Murray, 1957), Sanders commented that "something like an academic revolution in Australia would be needed to approach the target [of an 80% graduation rate] suggested by the Murray Committee" (1958: 37).

In New Zealand the increased demand for entry to the universities had become a pressing problem. Unlike Australia, where State-wide external examinations were the rule, New Zealand had, since 1944, a scheme of school-based assessment as a means of university admission. The introduction of the scheme had been influenced by a large-scale longitudinal study of the relationship between student performance on the University Entrance Examination (UEE) and subsequent success at university (Thomas, Beeby and Oram, 1939). The results of this study, which took 1926 and 1927 as the base years, show a high degree of agreement with the findings reported above (e.g. prediction was not too bad in the upper quartiles of average UEE scores but was still not good enough to be used as a predictor of individual success or failure; total mark on the UEE gave at least as good a predictor of success as correlations with individual UEE subjects in individual subjects in first year; the first year

results were a better predictor of graduation success than the UEE mark but was still not good enough for individual prediction; the Otis Intelligence Test produced a spread of scores with no clear cut-off point and could not be used as a basis for rigid selection; and finally, raising entrance standards even marginally would have excluded a significant number of graduating students). Two other findings are of particular interest: the fewer attempts required to pass the UEE, the better the chances of success at university, and a break of one or 2 years between school and university also appeared to improve the chance of completing a degree.

All first-year students in the four New Zealand universities in 1955 were included in an investigation by Parkyn (1959) of the effects of the standard of the university's entrance qualification upon the performance of students taking first year subjects.

As in the 1939 study, only in the top ranges of matriculation performance was there a reasonably clear association with university performance, although this was by no means perfect. The attempt to improve prediction by taking into account entrance level performance in specific subjects which were also studied at university again proved disappointing:

> "In none of the subjects studied was there a regular tendency for the coefficients to be higher than those for general measures (p. 21)".

Not unnaturally first-year results were found to be a better predictor of university success than entrance qualifications; nevertheless these still could not be used as an accurate predictor for individual success. Parkyn also showed if the university failure rate was to be halved by selection alone, then it would be necessary to reject over half the entrants, of whom approximately half actually passed (Parkyn, 1959). (The actual failure rate - 33 per cent for first-year full-time students - is similar to that reported from Australian universities.)

In summing up the results reported in the first volume of his report Parkyn (1959) concluded that there appeared to be no justification for either raising entrance standards or abandoning the system of accreditation. In the second volume of the report (Parkyn, 1967), attention was focused on the students' experience of life and work in the university since this was where the important causes of failure seemed most likely to occur. Despite vigorous methodological criticism (Marsh, 1970), Parkyn's reports were influential in New Zealand (and also in Australia) in casting doubt on the view that more stringent selection would lead to better graduation rates. The studies of Hohne, Olsen, Sanders, Beeby and Parkyn revealed the enormous complexity of the problem of failure at the tertiary level, and demonstrated the limits of prediction: failure could not be satisfactorily accounted for by the quality of the raw material and hence it was the process of education which should be studied.

This new perspective became apparent during the research of the 1950s. A longitudinal study of the 1955 first-year intake to the University of Queensland (Schonell, Roe and Meddleton, 1962) included not only such familiar measures as prior scholastic attainment and IQ scores, but also data about home and parental background, personal and study problems, and adjustment to the university and university teaching. This was the first major Australian study to make extensive use of questionnaire and interview data in investigating the factors affecting academic performance. Previously the information had been gained mainly from student records and results of tests; very little attention was paid to problems of methodology and the assumptions underlying them until the late '50s (Caiden, 1964).

Finding that there was no evidence to suggest a deterioration in admission standards as a result of the rapid rise in the proportion of the age group entering the University, Schonell and his colleagues rejected the idea of a limited pool of intellectual ability. In view of the problem of increased demand for entry, which had prompted the study, the authors decided that "A first solution is to accept them all, or almost all - this seems to be a right one in a rapidly developing country such as Australia ..." (p. 347), a solution very much in keeping with the opinion of the Government Committee on Australian Universities (Murray, 1957). At the same

time they warned that standards could not be maintained unless the University improved its teaching and drastically modified its organisation. Such recommendations were by no means new - Hohne, Sanders and Olsen had emphasised the need for sweeping changes in those areas. The difference was that Schonell, Roe and Meddleton were able to back up their recommendations with evidence connecting success or failure with the interaction between the university environment and the student. Their conclusion was that, while

> "... attempts at better prediction must continue, ... the complexity of factors so vividly illustrated in this study makes us believe that educators generally should concentrate less on the niceties of prediction and more on practical measures (p. 393)".

Behind this shift towards a broader and more sociological approach to the problem of failure and wastage at the tertiary level was the fact that "little advance was being made beyond confirmation of the basic propositions, and interpretation of the findings depended on social, economic and political factors" (Caiden, 1964: 35). There was also a growing concern that a high proportion of talented students (particularly girls and those from state and Catholic schools, lower income homes, and the non-metropolitan areas) dropped out of secondary school before reaching the starting-gate for university admission (e.g. Brown, 1954, 1955; Berdie, 1956).

The studies discussed above were undertaken in response either to the Commonwealth Government's wartime anxiety over student wastage at the universities or the post-war problems associated with rapid expansion in the tertiary sector. The concern over manpower needs continued to have an important and lasting effect on the higher education system in Australia. The need for graduates was largely responsible for the setting up of the Government Committee on Australian Universities in 1956 (the Murray Committee) and the acceptance of the Committee's report, which included recommendations to improve teaching and research in the universities as a means of reducing failure and wastage. In view of national manpower needs, the Committee concluded that:

> "... the universities should be put in a position to accept all those qualified who wish to enter, and give them teaching and facilities which will ensure each of them a reasonable opportunity to pass from first to second year and on to graduation (p. 32)".

In recognition of the results of the research in student selection, the Committee declared that no "solution (to high failure rates) would be given by raising matriculation standards" (p. 31).

The Murray Committee pulled no punches on the subject of the universities' productivity: "Such a high failure rate is a national extravagance which can be ill-afforded" (p. 35). Despite the consistently disappointing results, studies in which the problem was seen as one of prediction would continue to be carried out. However, the dominant paradigm shifted during the next decade and the questions which excited researchers concerned what went on inside universities. Parallel with these new research perspectives was a concern on the part of university authorities for student welfare, and it was during the late 1950s and early 1960s that most of the student services in health, housing and counselling were established.

RISING EXPECTATIONS AND EXPANSION: 1950-1965

Background

The second post-war decade opened with two spectacular launchings. The Russians put the first man-made satellite into orbit and, in higher education, the Committee chaired by Sir Keith Murray released its report. Murray was mainly concerned with how the universities might best meet the needs of Australia's rapidly expanding post-war economy - the provision of sufficient graduates and research workers is described by the Committee as "a matter of life and death to the nation" (Murray, 1957: 8). Sputnik was perfect PR, indeed the timing was so good that some said the Vice-Chancellors had organised it.

Australia was changing. Large-scale immigration and a high post-war birthrate had expanded the pre-war population by one-third. Highly trained professional manpower was now needed for industrial and commercial development and for new public service responsibilities. Universities, which had been seen by government during the war as institutions of national survival were now viewed as a means for social and technical progress.

Higher standards of living created a demand for longer periods of education at the secondary school level and intensified the pressure for entry to tertiary institutions. A sea-change had taken place in the aspirations of ordinary men and women in Australia and it is difficult to overstate its importance. For the first time in history education was viewed as the means to a better future for all: a majority saw more schooling as the main path to enhanced life-chances, if not for themselves, then for their children. It was a time of optimism and of growth.

It was the Commonwealth Government rather than the States which responded to these economic and public pressures for more higher education. The Commonwealth, in accepting Murray's recommendations, provided the greater part of the necessary funding. Doubting that universities alone could or should orchestrate the entire expansion the Commonwealth set up the Martin Committee and asked it to advise on the future pattern of tertiary education in Australia. Martin reported in 1964, and, in recommending two systems - universities and what were to become known as colleges of advanced education (CAEs) - set the stage for continued expansion into the 1970s. Of greater significance however was the shift of authority for higher education from the States to the Commonwealth; ad hoc measures were replaced by a federal co-ordinating agency and formula funding. Twenty years later these powers would enable a different Commonwealth Government to control and contract the system.

Rising retention rates in the secondary schools in the 1950s were not merely a function of population growth - the Murray Committee distinguished the "bulge" (increase in the population) from the "trend" (increase in the adolescent population qualifed to enter university) - and of the two the trend was to emerge as the most important (Philp, 1970).

An ACER study (Radford, 1966) showed that in the space of a few years the proportion of 16-year olds remaining at school almost doubled - from 22 per cent in 1956 to 40 per cent in 1964.

The development of secondary education in the 1950s was managed and funded by State rather than Commonwealth government - efforts of the latter continued to be directed almost exclusively to the development of higher education. For instance, in the year following the publication of the Murray Report, the Wyndham Committee was set up by the NSW Government to survey secondary education in that State. As McLaren (1974) pointed out, the Wyndham Scheme:

> "... represents the first major attempt in Australia to reorganise secondary education to meet the new facts of universal secondary education, which became a reality

after the Second World War, and particularly during the 1950s, in all Australian States (p. 235)".

Examinations for entry to secondary school education were abolished, and new examinations, generally called the School Certificate, were introduced at the end of the 4th secondary year (Year 10) as a terminating award for those completing their general secondary education. The old Leaving Certificate was replaced by the Higher School Certificate to be awarded to students completing six years of secondary education. Passes in approved courses qualified a student to matriculate for higher education.

Pre-war arts and science faculties had been largely inhabited by students who would become teachers, or by practising teachers doing their studies part-time. In the post-war decade the dependence of these large faculties on the teaching profession continued and the dramatic expansion of higher education was due, more than any other single factor, to the need for thousands of additional teachers to deal with the "bulge" and the "trend". The Murray Committee (1957) recognised the need for more and better educated teachers:

> "One major and critical field of graduate employment is that of teaching. Unless the schools can be staffed with soundly trained graduates, it is obvious that the whole educational edifice is threatened (p. 16)".

The States had responded to the shortage of teachers in the primary and secondary schools by introducing the bonding system for teacher trainees. The Murray Committee saw the bonding system - which provided free education plus a generous allowance during the years of the course in return for a legal commitment to teach for an equal number of years - as being "at best a necessary evil" (p. 64), and in some respects at odds with the country's needs as a whole:

> "... because of the pressure of demand [for teachers], there is little encouragement - or, in some cases, opportunity - given to students to proceed to an honours degree ... This is a dilemma because the Education Departments are taking a high proportion of science graduates which the community needs (p. 17)".

(In 1957, over 30 per cent of the universities' science and mathematics students were bonded to State education departments.)

Arts faculties expanded most. The Murray Report drew attention to the fact that, although absolute numbers had increased, there had been no rise in the percentage of university enrolments in the faculties of science, engineering and the other technologies compared with the pre-war years. This, together with the loss of talent to the universities caused by early leaving at the secondary school level, was considered by Murray to be partly a consequence of public apathy and ignorance:

> "Certainly [large sections of public opinion] are not as much alive to the needs of the future in this country as they are in the United Kingdom and the United States (p. 26)".

The immediate extension of the Commonwealth Scholarship Scheme (and modification of the means test applied to it) was recommended partly as a counter against the bonding of students as well as a means of encouraging more "able students and those from the country" to attend university and so swell the supply of higher trained manpower.

The vast increase in university enrolments, together with the growing importance of science and technology (the Committee was specifically asked to enquire into technological education at the university level) were the two new developments given, of necessity, most attention in the Murray Report.

Financial stringency was considered to be the underlying cause of all the main (and interrelated) problems facing the universities at this time - i.e. pressure of

numbers; the high failure rates; inadequate staffing, accommodation and facilities; the weakness of the honours and postgraduate schools; and inadequate teaching, particularly at the first-year level. Raising of entry standards or more rigorous selection were explicitly rejected as solutions to the problem. Rather, the Committee believed the matter should be tackled by attention to the teaching process and recruitment of staff should be based on their ability to teach, not solely on their research record. The universities' resources were manifestly unable to cope with the increase in enrolments. Moreover, according to figures supplied to the Committee by the Commonwealth Office of Education, enrolments were expected to increase by 120 per cent by 1967. The establishment of new universities was recommended. In New South Wales Wollongong University College was established in 1961; in Victoria Monash University was established in 1958; and in Queensland Townsville University College was established in 1961. The conversion to full university status was recommended for the university colleges in Canberra and Newcastle, and a Faculty of Medicine was established at the NSW University of Technology. The University of Technology had been favourably referred to in the Murray Report as representing "the only Australian departure so far from the traditional academic pattern" (p. 24). As Short (1967) noted, it is ironic that as a result of the Committee's recommendations, this University was renamed, brought into line with the prevailing pattern, and so lost its distinctive character.

To bring about expansion on this scale, "the Commonwealth Government's share of the [financial] responsibility must increase" (Murray, 1957: 98). In the event the Government was not slow to move, "emerging as a kind of paternalistic, developmental and protective agency and a manager of crisis" (Fitzgerald, 1975: 185 - Fitzgerald is here referring to the character of the Commonwealth's intervention in education in general). With greater financial support came greater control:

> "If the Commonwealth Government is prepared substantially to increase its contribution, it has the right to be assured that its grants are put to effective use (in terms of a national concerted policy) ... the day is past when planning of university development can be left entirely to individual institutions or confined within the boundaries of one State (pp. 98-99)".

To facilitate co-ordination to ensure that existing resources were used adequately and needless duplication did not occur, a permanent Australian Universities Commission (AUC) was established in 1959 in accordance with Murray's recommendations. The tension this was to create between various power groups is apparent in the following extract from the AUC's first report, presented in 1960:

> "The responsibility of the Commission to encourage a national approach to university problems is beset with obvious difficulties. The Commission works within a framework of university governments, State governments, and the Commonwealth Government, and its constant concern is to preserve the autonomy of the university and to avoid any infringement of State rights. It is to be expected that attempts at any Australia-wide co-ordination of university policy will sometimes be frustrated by the reality of these historic rights (p. 8)".

The nature and limits of academic freedom were to receive more and more attention in the years to come.

The Murray Report, besides giving new impetus to internal enquiry within the universities, marked "the beginnings of concerted attack on common problems" (ACER, 1964: 341); conferences and symposia began to proliferate - important examples:

> In 1960 the AVCC called a conference of representatives engaged in educational research in Australian universities; recommendations included increases in unbonded financial assistance to students; financial support for a research program to evaluate university teaching methods; initiation

> of research on a national scale into student progress, teaching and assessment practices; the extension of health and counselling services; closer liaison with the schools; and the initiation of local research.
>
> As a result of this conference a second conference of this type, jointly sponsored by the AVCC and the FCUSA, was held in 1961 on the topic "Efficiency of the Australian Universities in the Face of Rising Numbers' (by this time, estimates of future enrolments reported by the Murray Committee had proved highly conservative).[2]

Following this conference the AVCC set up three sub-committees to examine staff recruitment, honours schools and methods of teaching and examining in Australian universities. Results of the two most significant investigations generated by the 1960 and 1961 conferences respectively are reported in The 1961 Study (Department of Education and Science and the AVCC, 1971) and Teaching Methods in Australian Universities (Passmore et al., 1965).

At the same time efforts were being made to standardise the presentation of university statistics for purposes of comparison. For instance Hughes (1960b) showed how an estimate of minimum time graduation rate could be calculated. In 1961, the Commonwealth Office of Education convened a meeting, attended by representatives of the AUC, the universities and the Commonwealth Bureau of Census and Statistics, which suggested modifications that were later incorporated in the Bureau's publication, University Statistics.

The decade saw higher education expand in order to meet perceived national needs and the rising ambitions of individuals. However, the Commonwealth Government did not want "more of the same" and following recommendations made by the Committee on the Future of Tertiary Education in Australia (Martin, 1964), determined that the greater part of the expansion would not be in universities but in a parallel system which, like universities, would have high academic standards, but would place greater emphasis on teaching and applied studies. The new institutions came to be called colleges of advanced education.

So far as students were concerned there was a widening choice of courses, within universities and between the university system and the advanced education system. Competition for admission to many courses was intense and this directed some research attention to the refinement of selection procedures. For those students who gained admission there were welfare services in health, housing and counselling.

We shall see how education research contributed to, or at least legitimated, these developments.

The Research Studies

As we have seen, in the 1950s and early 1960s research questions had been framed in response to the objectives of using resources efficiently in pursuit of national interests. A survey of research on factors associated with the output of graduates from Australian universities (Punch, 1966) illustrates the concern of the time:

> "Since the relationship between the number of entrants and the number of graduates is fundamental to the concepts of efficiency and productivity in education, a major concern has been with the size of the graduate output of the different secondary and higher educational institutions (p. 1)".

The findings of research studies were viewed in a new perspective by the next generation of researchers. Failure and dropping out were seen as part of a process of

social differentiation which meets the needs of a hierarchically differentiated society. By 1962 Hammond had ample evidence to conclude that "bright students are not lost by accident but by a process of social selection comparable in importance to selection by ability" (1962: 106). Implicit in much of the research from this point on was a concern for the "right" of the individual to education. Researchers began to document not failures, but failure to be educated.

Two Australia-wide surveys of secondary school enrolments showed a striking upward trend in the proportions of children, particularly boys, remaining at school beyond the age of fifteen (Borrie, 1962; Radford, 1962). Nevertheless studies by Brown (1954, 1955), Berdie (1956), the Commonwealth Office of Education (1961) and Radford (1962) all drew attention to the failure of academically talented children to complete their secondary education. Despite the rise in retention rates, by the mid-1960s less than one-quarter of Australian children were likely to enter the final year of secondary school (Punch, 1966). Who were the ones missing out?

At first surveys documented a broad spectrum of student characteristics. Evidence provided by the above studies, together with results from the Queensland study by Schonell, Roe and Maddleton (1962) showed completion of secondary school to be strongly associated with sex, socio-economic background, place of residence and type of school attended. Boys, children from higher socio-economic families, those in urban areas, and those attending non-Catholic independent schools were the ones most likely to matriculate. Analyses of the university population reported by Punch (1966) clearly reflects the influence of these factors not only in determining which children matriculate but also which matriculants enter university.

Information about the socio-economic and educational backgrounds of university students had to come from research studies since, unlike data on sex, age and examination results, social accounts were not kept by administrators. Except for Melbourne University, where researchers began making annual audits of entering students' characteristics in 1962, a practice followed by Monash University eight years later, such data are still not routinely collected by Australian universities or colleges. During the late 1950s and 1960s many studies asked about students' backgrounds and it became possible to see the social profile of higher education.

Schonell, Roe and Maddleton (1962) found that full-time students at Queensland in 1955 were a highly select group: 42 per cent had fathers of high occupational status, a category containing only 8 per cent of working males, while students with fathers in the lower status occupational groups, comprising 35 per cent of working males, accounted for 4 per cent of first-year students. Similar findings were reported for Melbourne (D.S. Anderson, 1961; Hammond, 1962; Theobald, 1961), Adelaide (Rowe, 1960), Tasmania (Hughes, 1960a), the University of New England (Katz, Katz and Olphert, 1965) and in New Zealand (Parkyn, 1959, 1967).

The circumstances of part-time students was to receive more attention after the Commonwealth Government's Committee on the Future of Australian Tertiary Education (Martin, 1964) drew attention to the very poor graduation rates of this group (e.g. Maddleton, 1965; Butterfield and Kane, 1969). Up until the mid-1960s only a few research workers had collected information on the background of part-time students. Results published by Hohne (1951, 1955) and D.S. Anderson (1963a) at Melbourne, and Sanders (1961) in Western Australia indicated that lower socio-economic status groups received better representation among the part-time student population.

With respect to place of residence, results reported by Radford (1962), Scott (1959) and Hammond (1962) showed that students from metropolitan areas were over-represented at the expense of those from the country; for instance Hammond estimated that a student living in a metropolitan area was six times more likely to attend university than a rural student.

The educational background of students (measured in terms of type of school attended and the educational level of the family) as a factor associated with academic performance received more attention than socio-economic background. Results of studies by Hogben (1961), A.W. Anderson (1961) and Sanders (1961) in Western Australia, Schonell, Roe and Maddleton (1962) in Queensland, D.S. Anderson (1963b),

Hammond (1957) and Theobald (1961) at Melbourne, and Gray and Short (1961) at the University of New South Wales led Punch (1966) to conclude that:

> "Although the representation from Government schools has improved, independent schools continue to provide disproportionately large numbers of university students ... With respect to family educational background, although prior family attendance at the university (or a high level of family education in general) improves an individual's chances of entering the university, the expansion of enrolments has been so great that up to 70 per cent of each year's entrants are first-generation students (p. 68)".

The overall impression gained from these studies on the association between performance and educational and socio-economic background is that the university student from a high socio-economic background has a greater chance of graduating than one from a working class background, particularly where the former student has attended an independent school and the latter a Catholic or government school.

However, comparison between studies carried out in the mid-1950s and later investigations indicate that the association of social class and type of school, and performance had weakened. It is possible that, as a result of the upsurge of competitive entry which began in the early 1960s, selection was operating to reduce the variations of non-intellectual characteristics among students and thus masking the possibility of correlations with performance. Problems arising from competition for university places will be discussed presently.

Even if results had produced a less elusive association between social origin and performance they would hardly have been acceptable as a basis for selection. More promise was seen in gaining an understanding of the dynamics of the association in order to discover and so correct the handicapping factors which appeared to predispose many first-generation entrants to academic difficulty. One approach was to help students master the techniques necessary for successful university study; as Anderson and Priestley (1960) emphasised:

> "It is important for us to investigate this problem, and if necessary, to provide specific help in the university for students who are at present prevented from reaching their potential limits because of shortcomings in their approach to university studies (p. 16)".

Recommendations for courses in study methods, as well as for increased counselling, health and financial services were typical outcomes of the many surveys and the few interactive studies of student performance carried out in the late 1950s and early 1960s.

Although attempts to reduce failure rates by improving prediction and selection continued to be made, the numerous studies of the nature and influence of possible failure -inducing factors within the university environment reflect the growing belief among research workers that the faults were likely to be found not in the "raw material" itself, but in the "processing" of it. McDonell (1975) sums up the situation this way:

> "In the search for solutions to the wastage problem there appeared to be three main approaches emerging. There were those who continued to investigate tests and methods of selection, others turned their attention to better guidance of students at both secondary and tertiary levels, while another group pressed for improvements in teaching and learning within the universities (p. 44)".

Many studies which started with the intention of identifying reliable predictors ended up recommending guidance or better educational practices in universities.

Hogben's study of the predictive value of reading ability, IQ scores and matriculation average mark at time of entry, based upon six intakes to the Medical Faculty at the University of Western Australia, showed that the correlation of these measures with first-year average score fluctuated widely from year to year. University pass rates also fluctuated from year to year, and Hogben concluded that there was a lack of stability in the criterion. He pointed out the impossibility of finding a good predictor for a poor criterion, and hence the need for developing greater consensus about course objectives and teaching and examining practices within the Faculty (Hogben, 1965).

Much the same point had been made several years earlier, and for similar reasons, in an article (Anderson and Priestley, 1960) summarising what was known about the causes of student failure:

> "Until this uncertainty about the meaning of examination marks is eliminated, educational research workers face a difficult task in attempting to evaluate possible causes of failure. The fact that most of the positive correlations that have been found between examination results and other variables in the student, his environment or teaching are low could mean either that the relationship is weak or that examinations are unreliable. Similarly, any educational change introduced by a university administrator could be nullified because of lack of reliability (p. 31)".

The first part of Parkyn's very thorough investigation of student performance in New Zealand had contributed to the growing disillusionment with the prospect of reducing failure by improving selection and prediction. The recommendations contained in the second volume of Parkyn's report (published in 1967) reflect a belief also common among research workers in Australia by this time, namely that the most important causes of failure are to be found within the university itself.

Parkyn investigated the effects on performance of such circumstances as type of enrolment, course load, job commitments, living conditions and socio-economic background. The only consistent association was with part- and full-time study; the part-time students were likely to do less well, but even this association was weaker than that with prior examination performance.

In discussing the implications of these results, Parkyn took into account a study by Small (1966) at the University of Canterbury which used an individual case history approach, similar to that used by Sconnell, Roe and Maddleton (1962), rather than the more common survey method.

Small's intensive study of 97 students attempted to predict first-year results. He used a structured interview, a questionnaire examining medical and psychiatric symptoms, a personality questionnaire, an intelligence test, a reading test and School Certificate marks. The attempt failed. Small (1966) decided that:

> "The performance of students is so idiosyncratic that a reduction in the failure rate would not easily be achieved by general measures. Attempted improvements should therefore be based upon the principle of meeting individual needs (p. 72)".

He recommended improved guidance and counselling at the school and university.

The inability to predict academic performance with much precision either from prior examination results, psychometric tests or case histories led Parkyn (1967) to conclude that inadequacies in the university's examination procedures, rather than inadequate ability or personality deficiencies were a major cause of student failure:

> "The variability of the relative performance in a selected group, which makes accurate prediction

> impossible, is caused partly by real changes in attainment from time to time, partly by the unreliability of the measures used, and partly by variations in the standards of the examiners themselves ... [If] improvements in the practice of examining became general, together with other measures suggested, such as increased guidance and counselling, it should be possible to at least halve the rate of failure (p. 227)".

The question of reliability and validity of university examination is a highly sensitive issue, and although it has been researched in Australia, there are few published studies. The publication of Bloom's Taxonomy of Educational Objectives in 1956 led to some attempts to construct tests and examination papers in accordance with Bloom's ideas. Results of exploratory investigations of this kind were published by Dunn (1962), Gray and Short (1961) and Fensham (1961, 1962).

Although attempts made by research workers in Australia to improve prediction continued to meet with little success, some headway was made in identifying those groups most "at risk".

At the University of Western Australia, A.W. Anderson investigated the relationship between science students' average marks for certain matriculation subjects, their scores on the B40 intelligence test, and the number of subjects passed in first year. While IQ score proved of low predictive value (a finding in line with earlier studies), a combination of high IQ and low matriculation scores was found to characterise the least successful entrants (A.W. Anderson, 1960a). Similar findings were reported by Flecker (1959) and Hogben (1961) at the same university and were further supported by subsequent studies of science students in other States, the results of which have been summarised by Pentony and Loftus (1970).

Pentony, at the Australian National University, interpreted these results by arguing that university success is a function of ability and application; lack of application is indicated when IQ is relatively higher than performance. Aside from this characteristic, Pentony found that failing students tended to differ from successful students in the way they felt about themselves, their courses and the university. According to Pentony (1968) they lacked faith in themselves, interest in what they were working at and identification with the institution and its staff; while such attitudes are the result of failure, they also contribute to it.

These observations are similar to findings of two more extensive studies which looked at the interaction between various non-intellectual characteristics of the student and the university environment. By the mid-1960s attempts to isolate a single factor as a cause of academic failure had been abandoned in favour of research into combinations of factors. At the University of New England, Katz, Katz and Olphert (1965) found that, among other things, first-year failing students tended to lack the confidence and drive of successful students and to see themselves as able to attain their goals without undue effort. Gibbs (1965, 1966) at the University of Adelaide, found a pattern consistent with the commonsense expectation that good academic results require students to be systematic in the organisation of their work and to be highly persistent. Failing students also tended to be poorly adjusted socially.

The influence on performance of study and living conditions, financial and health problems, motivation, and study habits was investigated by many research workers during the period under consideration. The results of these studies strengthened the view that failure is largely the result of experiential factors rather than of innate characteristics, and led to more concerted efforts to make the university environment conducive to effective learning.

Research influenced policy and practice mainly by showing what would not work. Reviews of the literature by Sanders (1958, 1963) and Hammond (1962) were in unanimous agreement on one point: "When one examines these reports", says Hammond,

> "one is bound to notice that each research worker finds that his results lead him to deny the common assumption that raising university entrance requirements will lead to a corresponding rise in university pass rates (p.98)".

The same point was made in several submissions to the Commonwealth Government's Committee on the Future of Tertiary Education in Australia and help to explain why so little was said on selection in the Committee's final report (Martin, 1964). One of these submissions (Turner, 1964) produced evidence in support of the notion that a much higher proportion of the age group than that which actually enrols could have undertaken higher education with reasonable chances of success. The idea that there is a "limited pool of ability" from which universities can expect to recruit students was rejected, as it had been by the influential Robbins Committee (1963) in Britain.

Although Monash University had been teaching for only one year, the evidence presented in its submission to the Martin Committee was consistent with results from other universities, namely that university performance cannot be predicted with any great accuracy. Associations were too low to have useful predictive value and the submission concluded that, in view of the relatively successful performance in all five faculties of the 20 per cent of students ranking lowest on matriculation scores, the use of matriculation performance as the criterion for admission was neither efficient nor entirely fair (reported in McDonell, 1975). These submissions are one instance where research results appear to have influenced policy recommendations and, in this case, the action which followed.

The Martin Committee stated that university education should be available to all who had the desire and capacity for it and opposed the raising of matriculation standards as a means of improving university pass rates. Instead universities were urged to pay more attention to their teaching methods, to provide for small group learning situations and to ensure some assistance in developing teaching skills for new members of staff (Martin, 1964). Two or three universities had already established units for the improvement of teaching. The Martin recommendation encouraged others to follow.

In the meantime the first national study of student performance was being carried out which would further strengthen the case for better teaching and examining. It was a longitudinal survey of the academic progress of all students entering Australian universities in 1961 and it produced the most comprehensive set of data of this type ever collected. Although the investigation, known as the 1961 Study, aimed to describe rather than explain student performance, the predictive value of matriculation performance was examined. The correlations with first-year passes, minimum time graduation and total graduation were mostly in the range 0.3 to 0.4, even lower than those found in earlier studies. It would have been necessary to reject more than half of the 1961 entrants in most States to achieve the 80 per cent graduation rate suggested by the Murray Committee, and in most cases over 50 per cent of the "rejected groups" actually graduated. The cutback in admissions required to achieve the 60 per cent minimum time graduation rate suggested by the Martin Committee would have resulted in an even greater loss of graduates. The report also documented in fine detail the large variations of academic performance between different courses in the one university, and between similar courses in different universities (Department of Education and Science and the AVCC, 1971).

When the bench-mark was success in post-graduate studies, school achievement was an even weaker predictor. The Education Research Office at Melbourne made an intensive study of the subsequent careers of students who began full-time courses in 1956. Ten years later, thirty-six had completed Master's or Ph.D degrees. Relating this to the matriculation results it was found that higher degrees were completed by 9 per cent of the top third, 6 per cent of the middle third, and 5 per cent of the lowest third. Several of those in the lowest third would not have been near admission to a quota at the standard applying in the mid-1960s (reported in D.S. Anderson, 1970).

Studies of Melbourne pass rates before and after tough selection revealed a generally upward but uneven trend in first-year pass rates. In the last pre-quota years (1957-59) elimination of the bottom 20 per cent of entrants would, all other conditions remaining the same, have raised the pass rate from 64 per cent to 70 per cent. The pass rate in the "excluded" fraction was 40 per cent (D.S. Anderson, 1966).

Even if selection could not solve the embarrassing problem of failure, the problem of a surplus of qualified applicants remained and university admission committees found themselves administering a social competition. They insisted on being provided with an acceptable means for filling quotas which, by the mid-1960s, were established for most courses. It became a technical exercise to devise the best formula from approved components. At Melbourne the professorial board wanted to know if schools could assess students' university potential better than examinations and so the predictive value of matriculation scores was compared with that of headmasters' assessments of applicants. Little difference was found between the value of these measures and no appreciable improvement resulted from combining them. The probability of success at the cut-off level was generally around 50 per cent; prediction had a high degree of certainty only at the upper performance level (D.S. Anderson, 1963b).

During the late 1960s and 1970s Victorian admissions used a formula which aggregated matriculation examinations marks. If a candidate's best marks were from a second or later attempt the total was adjusted downwards to take into account an "over-prediction" factor. Numerous versions of the formula were evaluated by Biggs (1967) in one of the most complex set of actuarial calculations ever made of likely academic attainment. However, the significance of the formula lay not in better prediction, but in the attempt at equalising the competition for entry. Since the adjustment affected, in the main, students from families who could afford the expense of more than one year in the sixth form, bright students from poor families were on a more equal footing.

Because the intense competition for high marks was said to detract from the proper educational purpose of secondary schooling, the use of matriculation scores as the basis for selection and the awarding of Commonwealth Scholarships came in for more and more criticism in the 1960s. Many saw the use of a scholastic aptitude test of the type widely used for university admission in Canada and the USA as a means of reducing the undesirable pressure on the schools and sixth-form students caused by the matriculation examination. By the mid-1960s, the focus of the debate had shifted from the predictive validity of the examination to a concern for its effects on the nature and quality of secondary school education.

The Australian Council for Educational Research (ACER) was pre-eminent for research and development of objective tests and, among the States, Western Australia in particular had experimented with standardised psychological and achievement tests (Sanders, 1963). By the mid-1950s an objective test in English, prepared by ACER, was an essential part of the Western Australian Leaving English examination. Studies of its validity, reliability and predictive value were reported by Dunn (1959) and Dunstan (1959, 1960).

At this point the contribution to knowledge made by the very large number of prediction studies can be summed up as follows:

1) assessment of examination performance at the end of secondary school provides the best prediction of university performance;

2) combinations of examination marks with data from other predictors rarely improve the correlation by an amount which would be useful in practice;

3) even the best predictors are not very efficient. In most cases the correlation is less than 0.6 which means that only about one-third of the variation found in university performance can be accounted for by the predictor.

Perhaps due to disenchantment with the results from predictive studies, a new type of investigation began to appear during this period, one which was primarily concerned not with prediction of academic results, but with the quality of life on the campus (e.g. Grey and Short, 1961; Katz, Katz and Olphert, 1965; Small, 1963, 1966). Surveys of university students carried out during this period include investigations of living and study conditions (e.g. Nixon, 1965; Priestley, 1965; Sharp, 1959); residential accommodation and tutorial assistance (Ryan, 1967); reasons why students decide to enter pass or honours (D.S. Anderson, 1960); personality traits (A.W. Anderson, 1960b; Small, 1966); motivation for entering university courses (Hammond, 1962; Katz, Katz and Olphert, 1965); and mental health (Priestley, 1958; Roe, 1962).

Although universities and research workers in Britain and the USA had for many years paid considerable attention to the mental health of students, Priestley's (1958) investigation of this problem appears to be the first of its type published in Australia, aside from a small study of medical students (Logan, 1954).

Priestley's report was based upon questionnaire surveys carried out at the Student Counselling Office at Melbourne. Approximately 1,000 students sought assistance each year. The high rate of student breakdown appeared to be caused

> "partly by 'normal' transient disturbances ..., partly by more serious psychological difficulties, and partly by academic and social deficiencies in the university environment (p. 33)".

Similar findings were reported a few years later at the University of New South Wales (Gray and Short, 1961).

Aside from humane considerations, Priestley, sensitive to the times, appealed to economic arguments to support the case for better student health services, pointing out that a little money spent on this area "can be regarded as no more than insurance against wastage of resources" (p. 37).

The lack of student health and counselling services had been cited in the Murray Report (1957: 40-41) as an important contributing factor to high failure rates, and this - together with an awareness that such services "are now considered a normal responsibility by many overseas universities" - led Murray to push for considerable developments in this field in Australian universities. After reviewing both Australian and overseas research on student failure and wastage, Sanders (1958) concluded that student services "are essential to deal with individual educational weakness and assist in the rehabilitation of the potentially able who have become social, emotional and academic breakdowns" (p. 28).

The need for study skills courses and student counselling was demonstrated by several studies which investigated the reasons students give for failure (Flecker, 1959; Grey and Short, 1961; Olsen, 1958; Pond, 1964; Schonell, Roe and Maddleton, 1962). For instance, in a study of first-year students at the University of Western Australia, Flecker (1959) found that a large proportion of students reported experiencing anxieties which interfered with their studies; compared with passing students, those who failed had considerable difficulty organising their time and developing effective study methods. Similar results were reported by Hammond (1957), Olsen (1958) and Pond (1964).

Results of the detailed investigation of all first-year students at the University of New South Wales found that those who thought themselves weak in the ability to study effectively had about half the usual rate of success in first year. The same study indicated that a remedial reading course produced significant improvements (Gray and Short, 1961). Experimental studies designed to promote effective reading were also carried out in Western Australia (A.W. Anderson, 1959) and Melbourne (Hammond, 1962).

A second study by Gray which involved interviews with 87 students, showed that only half the sample had patterns of occupational interest relevant to their courses, and this appeared to be related to success in first year (reported in Hammond, 1962).

Results from the Melbourne First Year Survey suggested that about half the 1955 and 1956 first-year students in Arts, Law and Science had enrolled in their courses for reasons of opportunity, expediency or pressure rather than out of interest (Hammond, 1957).

Although many recommendations were made for the improvement of university teaching during this period (e.g. see Murray, 1957: 37-39; Sanders, 1958: 28; Schonell, Roe and Maddleton, 1962: 373-77) there were few developments in this area; instead, resources were used for the establishment of student services.

By the end of the second post-war decade researchers, whose work had in the main started with a narrow focus on student academic attainment, were beginning to ask questions about the context. Other studies were commencing with broader questions. The Vice-Chancellor of the University of Adelaide, A.P. Rowe, wrote a book in which he made some trenchant criticisms of universities, staff and students (Rowe, 1960). He regarded students as being woefully under-educated and, in order to obtain systematic evidence, he conducted five questionnaire surveys. He measured general cultural attainment with an "E Factor", derived from responses to questions about social and literary habits. He found that a high E score was associated with upper social status, but not with the type of school which a student had attended. High E ratings correlated with examination success, and there were also faculty differences, with Arts at the top and Engineering at the bottom. Rowe used his evidence to argue for a broader curriculum, the value of residential communities, closer staff and student relations, and better teaching.

A unique investigation was carried out at the University of Sydney by Philp et al. (1964); samples of graduates, undergraduates and the general community were surveyed in order to discover their views on university education. The instrumental view of university purposes, which had led governments to finance the post-war expansion, is well represented in the results. All three groups gave greatest emphasis to the vocational purpose. It is of interest to note that whereas the community group gave equal weight to the importance of teaching and research, graduates and undergraduates clearly gave teaching primacy.

In the third post-war decade questions concerning the nature and purpose of higher education were to become the subject of urgent debate because, in 1965, the Commonwealth Government had decided that higher education should consist of two parts, universities and colleges of advanced education, with the latter carrying the greater part of the continuing expansion. The effect of this on the questions asked by higher education research will be taken up in Part II.

NOTES

(1) The review attempted to include the most important New Zealand studies, among other reasons because they were influential in both countries. We are not qualified however to provide an account of the social themes which shaped education research in New Zealand and the following introductory remarks refer to Australia only.

(2) See Australian Council for Educational Research (1964), pp. 341-59 for a detailed discussion of developments of this kind in the late 1950s and early 1960s.

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Student Motivation and Study Strategies in University and College of Advanced Education Populations

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ABSTRACT

A "study process complex" comprising three major motives (instrumental, intrinsic and achievement) and three cognate learning/study strategies (reproducing, meaning and organising), is described. The Study Process Questionnaire (SPQ) is an instrument designed to tap these motives and strategies in tertiary students. It is hypothesized that patterns of motivations and study strategies would be typically different between students in colleges of advanced education (CAE's) and universities, given the natures of these two sectors of tertiary education.

The SPQ was administered to over 2,000 students in five universities and nine CAE's in five states, and students' motive and strategy scores were compared. University students were found to be more intrinsically motivated, and more likely to use meaning and organising strategies. CAE students were more instrumentally motivated and more likely to use the reproductive strategy. University students who rated themselves "excellent" were intrinsically motivated; while CAE students in this category were highly organised. Greatest institutional differences were found in teacher education. These findings are highly compatible with the aims and functions of the two types of institutions, and have particular relevance to the issues of end-on vs. concurrent programmes of teacher education, and enforced university/college amalgamations.

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INTRODUCTION

Colleges of advanced education were set up in the mid-sixties to cater for what was seen as a hiatus in the tertiary sector (Martin, 1964-5): the provision of vocational education for a range of professions that either were not catered for by universities, or could be catered for as well but more cheaply by colleges. Coincidentally, CAEs also became the means by which teachers' colleges attained independence from state education departments. CAEs thus incorporated a wide range of institutions, from genuine multi-purpose ones that included teacher education, to essentially single purpose ones that were (apart from a governing council) little different from the previous teachers' colleges.

Some observers saw this variety as a lack of focus, and suggested that the overlap with universities was sufficient to suggest amalgamation (e.g. Short, 1973). While there may be educational grounds for amalgamations in some instances -- given freely available resources to facilitate the process -- the Committee on Commonwealth Functions (the Razor Gang) proposed in 1981 that several college-university amalgamations should proceed forthwith, on economic grounds. Many fear that the conditions surrounding such amalgamations make it quite unlikely that any potential educational (let alone economic) advantages will ensue; rather, they would be to the detriment of both "advanced education" and "university" functions.

The latter argument depends on whether these two functions are in fact discriminable. One way of testing this would be to see if CAE and university students differ in their motives and modes of learning. The present paper addresses the following questions.

1. What are the university and advanced education functions?
2. Are CAE and university students typically motivated differently, in line with the supposedly different functions of the two types of institutions?
3. Do university and CAE students use different types of learning and study strategies?
4. Do students with high and low perceptions of, and satisfaction with, their academic performance have different motive/strategy patterns; and do these patterns differ between institutions?

THEORETICAL BACKGROUND

University and CAE Functions

A university carries out some functions that are shared with other tertiary teaching institutions, such as professional preparation and community programmes, but the one function which is unique to it is the advancement and transmission of knowledge; i.e. research and teaching "for its own sake". Such research and teaching is not as a direct response to an expressed community need, but in response to the state of the discipline. The essence of the advancement of knowledge lies in thesis, antithesis and synthesis, i.e. in conflict and its resolution; its motivation is an impelling curiosity; and its accounting is publication through teaching and writing.

The sort of environment that grew around this activity became ideal for "disinterested" research (i.e. research that intrinsically needs doing, in addition to that serving a particular vested need); teaching the subject matter that provided both context and outcome of research; the training of research workers; and more generally, the training of others whose professional tasks require an in-depth, enquiring, orientation.

The basic function of the advanced education sector is vocational preparation at a professional level. Most CAEs began life as teachers' colleges, with paramedical, agricultural, helping, and other professional areas following subsequently and opportunely as the labour market changed, constricting in some areas and expanding in others. Course offerings are thus vocational and pragmatic, disciplines are used only in so far as they are seen to have vocational relevance, and course sequences are usually terminal. Staff are selected accordingly, with professional experience being given high priority, with little or no expectation of research.

Such differences are reflected in the Commonwealth Tertiary Education Commission Report for 1982-84: the following points are relevant to the present paper:

"(c) Universities offer higher degrees by research work. Generally, colleges do not offer such degrees, although in some specialised areas some colleges offer masters degrees by this route and by course work;

(d) College students are generally expected to have vocational rather than academic or scholarly interests;

(e) College courses tend to have a more applied emphasis and to be more vocationally oriented;

(g) The commitment of universities to scholarship and research implies that they should have more substantial libraries and extensive scientific research facilities;

(k) The academic staffs of universities have an obligation to research: conditions of appointment require them to engage in teaching and research and they are expected to spend a substantial portion of their time on research and scholarship. Although some research activities occur in colleges, the staff's commitment is strongly to teaching;

(n) The academic qualifications of university staff tend to be higher and in their appointment greater emphasis is placed on distinction in scholarship, research and publication; college staff are expected to retain links with industry and the world of work;"

(From: Vol. 1, Part 2, Report for 1982-84 Triennium, February, 1981 - "Advice of Universities Council", Para 2-9).

Student Motives and Learning Strategies

Biggs (1978) has proposed a general model of study processes, in which the student will be motivated to perform (or not to perform) in a certain way and at a certain level, given his prior learning, his ability, his perception of specific course and task demands, and the importance he attaches to success or failure.

The study process complex comprises three main dimensions and typical motives and strategies within each dimension (see Table 1):

Table 1. Motive and Strategy Components in the Dimension of tertiary study

DIMENSION	MOTIVE	STRATEGY
D1: Utilising	M1: Instrumental: main purpose is to gain a qualification, with pass-only aspirations and a corresponding fear of failure	S1: Reproducing: limit target to the essentials given in course outlines and reproduce through rote learning
D2: Internalising	M2: Intrinsic: study to actualise interest and competence in particular academic subjects	S2: Meaningful: read widely, interrelate with previous relevant knowledge, discuss academic issues to achieve maximum understanding
D3: Achieving	M3: Achievement: obtain highest grades, whether or not material is interesting; interest in competing and winning	S3: Organising: follow up all suggested readings, schedule time, behave as "model student"

It is proposed that:

1. A formal learning situation generates three common expectations: to obtain a qualification with minimal effort, to actualise one's interests, and to publicly manifest one's excellence. These expectations correspond to the three motives in Table 1. There may well be other motives, such as social ones, but they are not considered here. The three categories of motive correspond well to those nominated in the literature for motivating academic performance: extrinsic, including both positive reinforcement (task as a means to a desired end) and negative (fear of failure); intrinsic; and need-achievement (e.g. Biggs & Telfer, 1981).

2. Students may endorse any or all of these motives to any extent (the dimensions are independent).

3. It would seem good "psycho-logic" for students to adopt the strategy most appropriate to their own complex of motives, and in fact most tend to do so (Biggs, 1981).

4. The motivational mix — and consequent strategy adoption — may vary from subject area to subject area, and from time to time. For instance, a student who is basically intrinsically interested in one particular subject, and is continuing at university in order to pursue it, may nevertheless be instrumentally motivated towards another subject that is needed to make up his course pattern, and thus have pass-only aspirations towards that subject.

5. The three strategies are likely to lead to different levels of quality of learning. Reproducing is likely to lead to high factual recall, but low meaningfulness; the meaningful strategy is likely to lead to greatest structural complexity; and organising is likely to lead to whatever goals the student sees as most pertinent to high grades. These predictions were generally confirmed for university students in a study by Biggs (1979).

Differences between University and CAE students

Given the different natures of the two institutions, one would expect that typical motives and strategies of students attending one or other institution would differ. There appears to be no previous work reported on precisely this, although Warren and Rees (1975) compared students' ratings of their institution (in one CAE and one university) and found that CAE students rated their institution higher than

university students did theirs on 'practicality' and 'community', and lower on (political/social) 'awareness' and 'scholarship'. These findings are highly consistent with expectations.

Students would be expected to choose a tertiary institution to suit their vocational, academic or personal goals; and to adapt their general approach to learning to suit their own abilities and to meet the demands placed on them. In general, and allowing for possible faculty differences, one would expect with respect to motives:

1. CAE students would score higher in instrumental motivation than university students. As noted, the CAE is instrumentally structured: most courses are terminal, and future progress is not critically dependent upon much-better-than-pass results, whereas a consistently high average is necessary for Honours or higher degree work in most universities.

2. University students would score higher than CAE students on intrinsic motivation precisely because a university-type course permits further study in depth of a subject discipline, rather than the co-ordination of many disciplines to serve instrumental or vocational ends. Consequently students with academic rather than professional interests would choose to go to university.

3. University students would be expected to be more achievement motivated than CAE students for the reason that for a significant proportion of university students future plans are contingent upon higher grades than pass. There is also likely to be a personality factor here: more achievement oriented students would opt for the institution that (rightly or wrongly) is perceived as having the higher status and as offering greater academic challenges.

And with respect to strategies:

4. In so far as reproducing is more likely to be adopted by pragmatically motivated students with pass-only aspirations, CAE students would be expected to adopt this strategy more so than university students.

5. Students who are pursuing a study for its own sake will naturally attempt to find maximum meaning and greatest personal relevance in their studies, and so be prepared to read and discuss the subject beyond the call of course outlines. Hence it is expected that university students would be more likely to adopt a meaning strategy than CAE students.

6. In so far as high achieving students with high levels of aspiration are likely to organise their study sessions, schedule their study times and assignment submissions, university students would be expected to be higher on the organising strategy than the CAE students.

Two questions of interest relate to the academic self concept of students:

7. Do the motive/strategy profiles of students who see themselves as good performers, or poor performers, relative to their peers, differ between institutions?

8. Do the motive/strategy profiles of students who are particularly satisfied or dissatisfied with their performance differ between institutions?

A final question is independent of institutional differences as such:

9. Are particular motive/strategy profiles typical of some faculties rather than others?

METHOD

Instrumentation

(a) The Study Process Questionnaire

The Study Process Questionnaire (SPQ) (Biggs, in preparation) is a 42-item questionnaire constructed around the motive-strategy model described above. Seven items address each motive and strategy in a Likert format, with responses on a 5-point scale, ranging from "This item is always or almost always true of me" to "This item is never or only rarely true of me".

To illustrate each motive and strategy, a typical item is given, with the obtained Cronbach alpha for the particular scale:

M_1 (α = .55): I chose my present courses largely with a bias to the job situation when I graduate rather than out of their intrinsic interest to me.

M_2 (α = .64): I find that at times studying gives me a feeling of deep personal satisfaction.

M_3 (α = .72): I see getting high grades as a kind of competitive game and I play it to win.

S_1 (α = .64): I generally restrict my study to what is specifically set as I think it is unnecessary to do anything extra.

S_2 (α = .74): I find that I have to do enough work on a topic so that I can form my own point of view before I am satisfied.

S_3 (α = .76): I keep neat, well-organised notes for most subjects.

(b) Academic Self-Concept

In a General Information Questionnaire administered with the SPQ, two items relating to academic self-concept were included:

(i) Self-rated Performance (SR). Students were asked to rate themselves on a 5-point scale, ranging from "Quite Poor" to "Excellent", in answer to the question: "In general, compared to others in your class/year, how good at tertiary studies are you?"

(ii) Satisfaction with Performance (SP). Students were asked to rate themselves on a 5-point scale, ranging from "Not at all satisfied" to "Very satisfied indeed" in answer to: "How satisfied are you with your current level of performance (whether your performance is actually high or low)?"

It is of course important to ask whether or not the student actually achieves well or poorly, but the constraints under which the data were gathered included anonymity, which made it impossible to link students' responses with grade point averages, or some other direct performance measure.

(c) General Information

Several other questions of a demographic and academic nature were asked, including one on the academic plans of the student, and specifically whether they intended their present course to be terminal, and if not, whether they were going on to Honours or coursework higher degree, research higher degree, or undecided.

The Sample

The samples were necessarily voluntary. Fourteen institutions in five States were involved; these were based on personal contacts established while the writer was on sabbatical leave in 1979. Questionnaires containing the SPQ and a general information section were administered at the beginning of lectures and were returned by the students (with reminders) in the ensuing week(s). Wastage is impossible to estimate accurately as lecturers were supplied with a number of questionnaires that were surplus to estimated required numbers. The target populations were: (a) CAE students, with particular reference to Arts, Education, Science and related faculties/schools and (b) University students in like faculties. Actual returns were 1406 (CAE) and 853 (University), which was 40% of those distributed. It is important to note, however, that wastage was at the same rate in both sectors.

Analyses

The major analyses were a series of two-way and three-way ANOVAs with Institution (CAE/University) as the first independent variable and Faculty (Arts, Education, Science), Sex, Year of Study (1st, 2nd, 3rd), Educational Plans (Terminal, Honours, Coursework higher degree, Research higher degree, Undecided), Self-rated performance (Poor to Excellent), and Satisfaction with Performance (Not at all, to Very), variously, as the others. The three motives, M_1 to M_3, and the three strategies, S_1 to S_3 were the dependent variables in all ANOVAS.

RESULTS

Table 2 lists the distributions of the institutions over the independent variables

Chi-square analyses were applied to the distributions and the probabilities are given below each. Not unexpectedly, the universities were heavily over-presented in Arts, and the CAEs in Education ($p < .001$); males and females were equally distributed. Only students in 1st, 2nd and 3rd years were taken because the patterns in higher years were grossly unbalanced, with much higher university representations. Nevertheless, there was a tendency ($p < .05$) for first year to be over-represented in university and underrepresented in CAEs, with the reverse happening in third year. This probably represents a sampling bias; first year lecturers in university were more agreeable to take even a small amount of time from class than were those lecturing in higher years.

Not unexpectedly, proportionately more university students had plans to go on to a research higher degree ($p < .001$). There is no difference between the self-ratings of performance between the two categories of student (but note the paradoxical number of students who see themselves as "above average"). There are, however, strong differences in the degree of satisfaction expressed ($p < .001$): university students are much more satisfied with their perceived level of performance than CAE students, although the levels themselves are evidently equivalent. 27% of CAE students see themselves as less than basically satisfied, compared to only 5% of university students.

Tables 3 through 7 give the results of the ANOVAS.

Table 2. Distribution by Institution and Faculty, Sex, Year, Plans, Self-concept and Satisfaction

1. Faculty	Arts	Educ.	Sci.	2. Sex	M	F
Uni	400	215	248		331	546
CAE	50	936	278		473	777
		(p < .001)				(n.s.)

3. Year	1	2	3
Uni	343	163	166
CAE	490	285	332
		(p < .05)	

4. Plans	Terminal	None/PG wk.	Res.	Undecided
Uni	280	243	70	294
CAE	596	233	84	417
		(p < .001)		

5. Self-Concept	Poor	Below Average	Average	Above Average	Excellent
Uni	4	12	572	260	33
CAE	4	46	826	355	23
		(n.s.)			

6. Satisfaction	Not at all	Not really	Basically	Quite	Very
Uni	2	42	249	349	225
CAE	34	306	511	366	35
		(p < .001)			

Table 3: Faculty and Sex Effects

	M_1	M_2	M_3	S_1	S_2	S_3
Institution (I)	10	000	-	01	10	01
Faculty (F)	-	000	-	000	10	000
Sex (S)	-	-	-	-	-	000
I x F	-	01	000	05	-	-
I x S	-	-	-	-	-	-
F x S	-	-	-	-	-	-
I x F x S	-	-	-	-	-	-

I x F

		A	E	S
M_2	U	23.4	23.4	21.8
	CAE	23.0	21.3	21.1
M_3	U	19.4	18.5	20.5
	CAE	19.7	20.0	19.3
S_1	U	19.3	19.6	21.9
	CAE	20.1	21.0	22.0

Institution exerts a marginal effect on M_1, with college more instrumentally motivated than university students, and more likely to use the reproducing strategy (S_1). University students are much more intrinsically motivated than CAE ($p < .0001$); are marginally more likely to use the meaningful strategy ($p < .10$); and more likely to use the organising strategy ($p < .01$). There are also strong faculty effects ($p < .001$): Arts is highest on M_2, Arts and Education on S_2, and Science on S_1 and S_3. As the interaction shows, however, the strength of these effects varies between institutions. There is only one strong sex difference: females are more likely to use the organising strategy than males ($p < .0001$).

The means for the Institution x Faculty interactions are given in Table 3, and are depicted in Figure 1. The major difference on intrinsic motivation is between Education students ($p < .01$), with university students [illegible] intrinsically motivated than CAE students. However, CAE Education students are more achievement motivated than university Education, where CAE Science students are less achievement motivated than university Science ($p < .0001$).

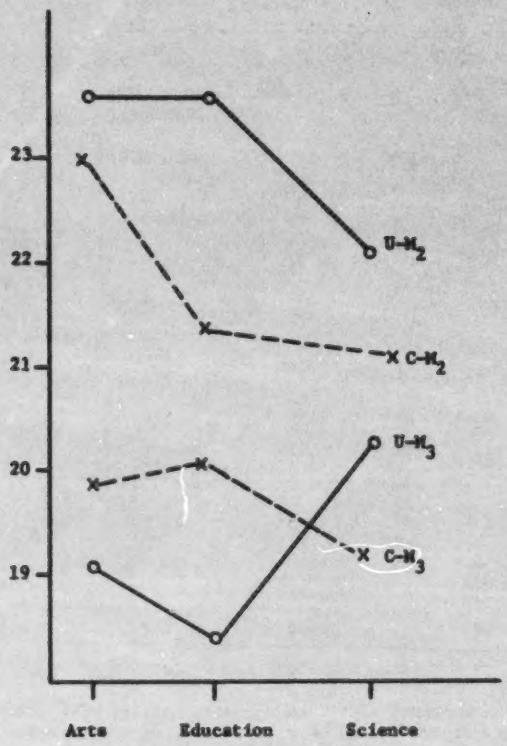

Figure 1: Institution x Faculty Interaction on Intrinsic and Achievement Motivation

The S_1 main effect is sharpened in the interaction ($p < .05$): although CAE students tend overall to use a reproducing strategy, the differential is most marked in Education.

Year of study is investigated in Table 4.

Table 4: Effects of Year of Study

	M_1	M_2	M_3	S_1	S_2	S_3
Institution (I)	-	000	-	-	001	000
Year (Y)	-	-	01	-	10	05
I x Y	-	-	01	-	-	01

I x Y

		1	2	3
M_3	U	20.4	21.0	20.1
	CAE	23.0	20.6	19.8
S_3	U	21.5	22.0	22.1
	CAE	20.0	18.5	16.8

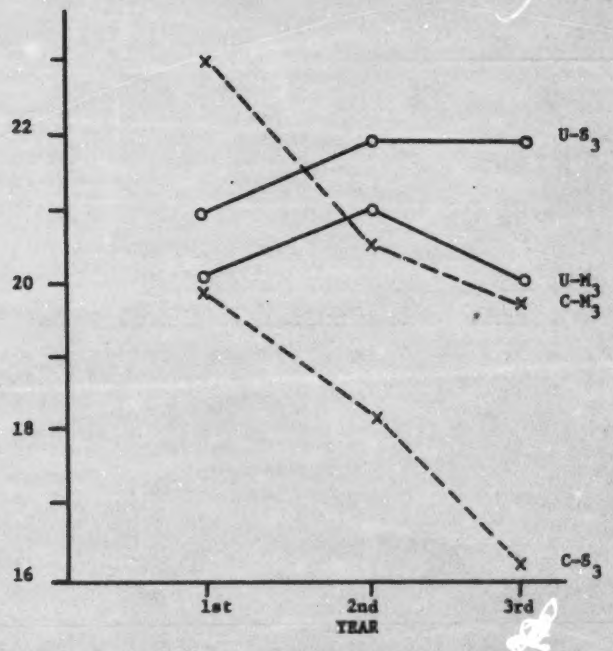

Figure 2: Institution x Year Interaction on Achievement Motivation and Organising Strategy

Institution main effects are similar to those depicted in Table 2, except that the S_2 effect now becomes highly significant ($p < .001$). The Year main effects are best looked at in the Institution x Year interactions on M_3 and S_3 (see also Figure 2).

CAE students appear to enter 1st Year with much higher achievement motivation than university students: an effect which is lost by 2nd Year and thereafter ($p < .01$).

A somewhat similar picture appears with the cognate strategy ($p < .01$): CAE students show progressively lower S_3 scores, while university students if anything slightly increase their organisation of study.

Table 5 outlines the effects of Institution, Sex and Educational Plans.

The decreased error variance in this ANOVA now sharpens several Institution and Sex main effects; CAE students are higher than university students ($p < .0001$) on instrumental motivation, reproducing strategy ($p < .001$) and marginally on achievement motivation ($p < .10$); while university students are higher on intrinsic motivation ($p < .0001$), meaning strategy ($p < .01$), and organising strategy ($p < .0001$). Males are higher than females on instrumental motive ($p < .05$) and reproducing strategy ($p < .01$); females score higher than males on meaning ($p < .01$) and organising strategies ($p < .0001$) and marginally on intrinsic motivation ($p < .10$). The Plans effects are modified by the interactions, reproduced in the table and in Figure 3.

Table 5. Effects of Educational Plans

	M_1	M_2	M_3	S_1	S_2	S_3
Institution (I)	000	000	10	001	01	000
Sex (S)	05	10	-	01	01	000
Plans (P)	000	000	000	000	000	000
I x S	-	-	-	-	-	-
I x P	001	05	-	01	01	-
S x P	-	-	10	-	-	10
I x S x P	-	-	-	-	10	-

I x P		Terminal	Hons/Coursework	Research	Undecided
M_1	Uni	22.7	22.1	19.5	20.2
	CAE	23.3	21.9	21.7	21.9
M_2	Uni	21.8	22.7	25.3	23.4
	CAE	20.6	22.5	23.7	21.2
S_1	Uni	21.3	20.4	18.3	19.2
	CAE	22.1	20.2	19.9	20.5
S_2	Uni	21.7	22.5	25.1	22.8
	CAE	21.5	23.7	23.5	21.7

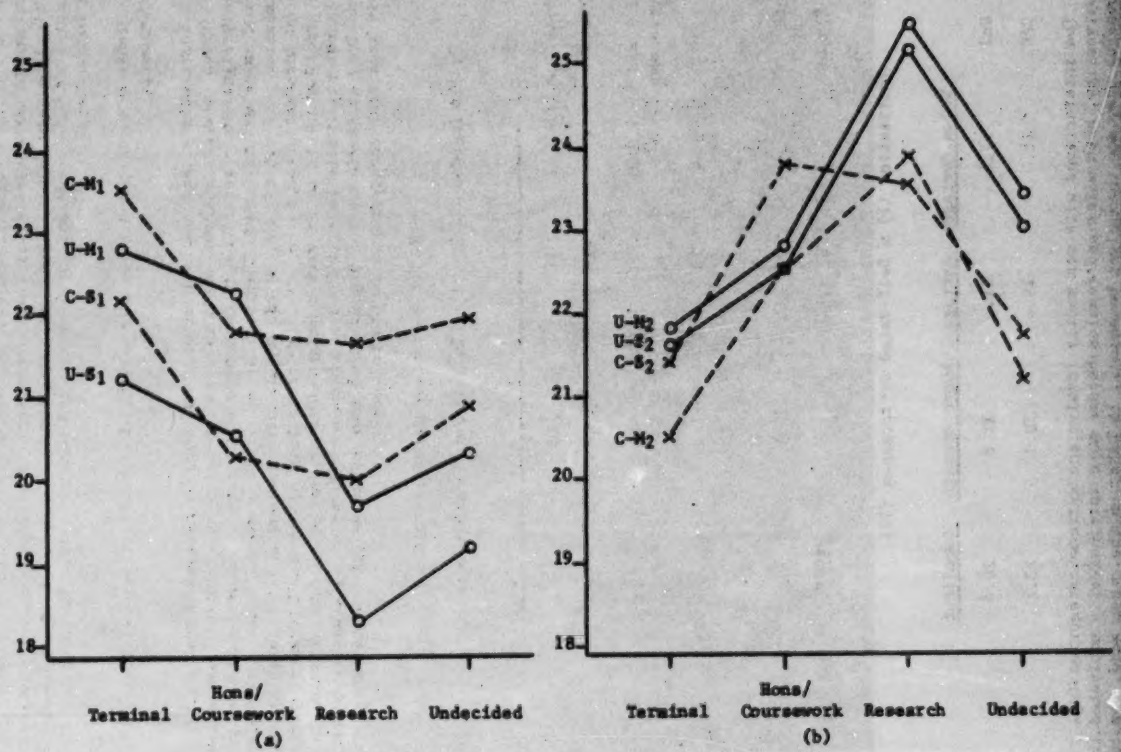

Figure 3. Institution x Plans interaction on
(a) instrumental motivation and reproducing strategy
and
(b) intrinsic motivation and meaning strategy

On instrumental motivation, the greatest differences are in the Research and Undecided categories ($p < .001$); a very similar pattern occurs with the cognate strategy, S_1 ($p < .01$). The meaning strategy (S_2) is used equally by Terminal students, greatest differences between CAE and university again involving Research and Undecided. Taken collectively, the data show greatest differences in "academic" motives and strategies (i.e. low instrumental/high intrinsic, and low reproducing/high meaning) between Terminal and continuing students in the CAE (whether Hons/postgraduate, Research or Undecided) and first degree and honours versus Research and Undecided in the university.

Table 6 shows the motives and strategies for different self-ratings in performance.

Institutional and sex main effects are much as presented previously. The four self-rated categories (Poor was combined with Below Average) have a monotonic and highly significant relationship to motive and strategy; with the exception of S_3, which showed an interaction with Institution ($p < .01$): M_1 and S_1 steadily decreased with increasing self-rating; M_2, S_2 and M_3 steadily increased as self-rating increases. The I x SR interaction on S_3 ($p < .01$) (see Figure 4) shows a different pattern for university students on S_3 with a sudden decline in the students who see themselves as Excellent. While overall CAE students score lower on S_3, those who report themselves as Excellent are higher on S_3 than other university students, particularly their Excellent counterparts in the university.

Table 6. Self-Rated Performance

Institution (I) x Sex (S) x Self-Rated Performance (SRP)

	M_1	M_2	M_3	S_1	S_2	S_3
Institution (I)	01	01	-	05	..	-
Sex (S)	-	10	-	10	05	091
Self-Rated Performance (SR)	000	000	000	000	000	01
I x S	-	10	-	-	-	-
I x SR	-	-	-	-	-	01
S x SR	-	05	-	05	-	05
I x S x SR	-	05	-	-	-	-

Institution (I) x Self-Rated Performance (SR)

S_3	Below Average	Average	Above Average	Excellent
Uni	17.2	21.0	21.8	20.4
CAE	18.0	19.6	20.3	23.2

The interactions with sex mostly involve the extreme categories (all $p < .05$). In university, both males and females become more intrinsically motivated the more successful they see themselves becoming. In CAEs, on the other hand, females who see themselves as either Below Average or Excellent are most intrinsically motivated, whereas Below Average males are the least motivated, and Above Average the most ($p < .05$).

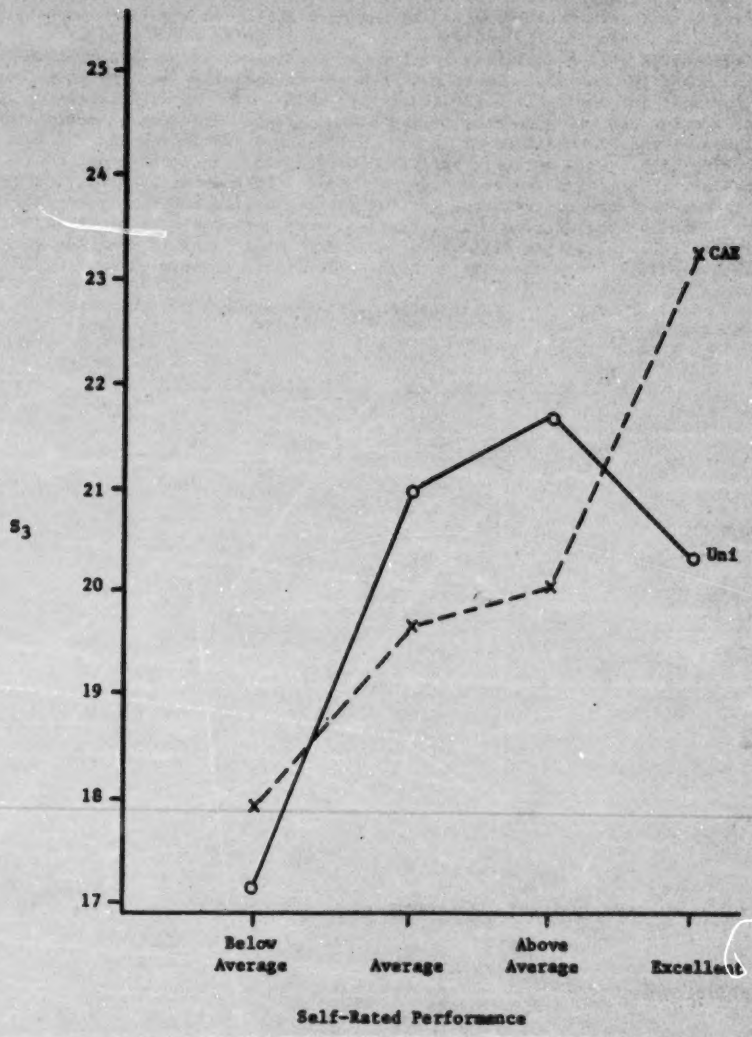

Figure 4. Institution x Self-Rated Performance Interaction on Organising Strategy

The patterns for Satisfaction with Performance are given in Table 7.

Institutional and sex main effects are similar to those reported earlier. Satisfaction exerts a linear effect only on M_1 ($p < .05$) and S_2 ($p < .05$), the more satisfied being less instrumentally motivated and more likely to study meaningfully; the less satisfied more instrumentally motivated and less likely to study meaningfully. The most satisfied females were less likely still to be instrumentally motivated than the most satisfied males ($p < .05$). Other patterns were disjoint. The topmost satisfied groups were the most intrinsically motivated ($p < .001$), with no differences between those average and below moderately and dissatisfied. Achievement motivation has a curvilinear U-shaped relationship ($p < .01$): the dissatisfied and the most satisfied scoring high, the moderately satisfied scoring low, on achievement motivation. The relationship with S_1 is an inverted U ($p < .01$): the moderately satisfied are most likely to use the reproducing strategy; the most satisfied and the least satisfied least likely. Finally, the extreme most satisfied group were the most organised ($p < .0001$), there being little difference on S_3 from Quite Satisfied to Not at All Satisfied. These effects were the same in both colleges and universities.

Table 7: Satisfaction with Performance

	M_1	M_2	M_3	S_1	S_2	S_3
Institution (I)	001	000	-	01	-	05
Sex (S)	10	-	-	-	-	000
Satisfaction with Performance (SP	05	001	01	01	05	000
I x S	-	-	-	-	-	-
I x SP	-	-	-	-	-	-
S x SP	05	-	-	10	-	-
I x S x SP	-	-	-	-	-	-

DISCUSSION

The results are best reviewed with reference to the expectations outlined above:

Instrumental Motivation

The main effect of Institution on M_1 is highly significant in Tables 5 and 6, showing that CAE students are more instrumentally motivated than university students. Students with terminal first qualification plans were most instrumentally motivated and proportionately more were in the CAEs. As is also indicated in Figure 4, however, the largest differences between CAE and university students are in those planning to go on to research or who are undecided. It is likely that these categories are interpreted differently. For example, by "undecided", CAE students mean undecided whether to leave at the termination of this course or not, whereas university students mean undecided about doing research or something else. These results are completely in accord with expectations based on the nature of the two institutions; pragmatically motivated students would naturally tend to opt for the vocationally oriented institutions.

Intrinsic Motivation

There are highly significant main effects on M_2 in every analysis, with university students more intrinsically motivated than CAE. This too is in accord with expectations: students with a strong interest in a particular academic discipline would naturally tend to go to the institution that taught that subject "for its own sake" rather than in the context of vocational preparation.

While this effect applies to all faculties, it is strongest in Education (Figure 1). This finding requires further discussion. Education students in CAEs were almost all in a concurrent three year programme (Dip.Teach., with a few B.Eds), while almost all the university students were in an end-on Dip.Ed. This difference may therefore be due to maturity, to the difference in course structure, or to more general differences between college and university environments.

As regards maturity, Table 4 indicates that there is no Year effect on M_2; and a separate analysis within the university sample (not reported here) again showed no increases or decreases in intrinsic motivation from 1st to 3rd Year, or between Arts and Education (but a highly significant difference between Arts and Education (high) and Science (low)). As for the college and university environments *per se*, it is true that university students are constantly higher on M_2; but this is most marked in Education.

It is likely, then, that the end-on university teacher education courses attract or create intrinsically motivated students. Whether that is due to the end-on pattern itself, or to something else, cannot be decided here. The implications with respect to recent attempts to require all students to move through the concurrent pattern (Correy, 1980) are discussed below.

Marked differences in intrinsic motivation between CAE and university students are not however to be found only in Education: as Figure 3(b) makes clear, students who propose to undertake a research higher degree, and who are undecided about higher degree plans, are much more intrinsically motivated than their CAE counterparts. Again, these results are in accord with expectations based on the nature of the institutions and the courses offered.

Achievement Motivation

Contrary to expectations, there was no clear-cut difference here, only one analysis (Table 4) showing a difference of marginal significance, but with CAE students being more achievement oriented than university.

The lack of a main effect is however due to significant Faculty and Year interactions with Institution. CAE Education students are more achievement oriented than their university counterparts, but CAE Science students are much less achievement oriented than university Science students (Figure 1).

Putting this together with the findings on intrinsic motivation, it seems likely that Dip.Ed. students are not terribly concerned about grades as such, having already completed their degree. CAE Education students, on the other hand, are still concerned about their level of progress and are not particularly intrinsically motivated.

Outside teacher education, the university does attract the more achievement oriented Science students as would be expected on the nature of the courses (e.g. B.Sc. leading to a higher degree in many cases, vs. Applied Science leading directly to a job).

The most striking difference between institutions on achievement motivation is however to do with Year (Figure 2). It is seen that CAE students are more achievement

oriented in the 1st Year, but this declines rapidly by 2nd Year and again by 3rd Year, while there is little change in university. The question is of course whether this is causal or a sampling effect: does increasing exposure to the CAE experience "kill" achievement motivation? Or is it the case that students in the 1979 cohort were more achievement oriented than the '78 and '77 intakes, possibly reflecting increasing competition for fewer jobs (particularly in teaching)? There is no way of telling from the present data which is the more likely explanation.

In short, then, the CAE students were more achievement oriented than university students only in first year, and in Education. In Science, university were more achievement oriented than the CAE sample. College students were highly achievement oriented in their first year only.

Reproducing Strategy

There was a consistent tendency for the CAE students to report greater use of the reproducing strategy: Table 3 shows that this effect is greatest in Education. This finding again supports the more "academic" image of the Dip.Ed. over the concurrent pattern being used in CAEs (see below).

Figure 3 shows that the pattern for educational plans is similar for S_1 as for M_1; differences between CAE and university being greatest for the Research and Undecided categories.

Meaning Strategy

The S_2 main effect was highly significant in two analyses, showing that university students read widely and sought for meaning in their study to a significantly greater extent than did CAE students, irrespective of Faculty or Year. The only exception to this was found amongst those CAE students who intended to go on to further degrees: these students scored higher on S_2 than their university counterparts.

Organising Strategy

University students consistently showed themselves as more organised than their CAE counterparts, with two interesting exceptions, explained in the following section. Figure 2 shows that this difference between CAE and university exists in 1st Year and increases markedly from 1st to 2nd and from 2nd to 3rd Years. It is noteworthy that university students appear to maintain both their motivation to achieve and an organised approach to study, while CAE students appear to lose both the will and this method of achieving high grades.

Self-Rated Performance

Although university students were more organised than CAE students as a general rule, there are two exceptions: the students who see themselves as performing below average, and those perceiving themselves as excellent, relative to their peers. The differences between the Excellent groups are highly significant. The top performing CAE students are far more organised than other CAE students, and more so than

university students in the same category. While organisation was seen as important by average and above average university students, it was seen as less important by the excellent university students.

This possibly says something about the kinds of strategy that are effective for the very best types of performance in the two institutions. Acting the role of "model-student" — putting in assignments on time, reading all set references, scheduling study time etc. — is related to self-perceived success in a CAE in a strong linear fashion. In university, however, the relationship is curvilinear: the factor most related to topmost self-perceived success in the university is intrinsic motivation.

Satisfaction with Performance

The only finding here reflecting institutional differences was a main effect, revealed in the initial distributions (Table 1): over five times as many CAE students were dissatisfied with their performance than were university students, despite the fact that there were no differences in performance as such, relative to peers. This possibly relates to the fact that CAE students were overall less intrinsically interested in their studies; and hence expressed more dissatisfaction with their grades. It is also possible that the relative dissatisfaction of CAE students is a function of a more global reaction to advanced education, as may be indicated by the progressive decline in achievement motivation and organising strategy noted in Figure 2. Perhaps, alternatively, the morale of CAE students may be more vulnerable to market factors than that of university students, the latter being (realistically) more optimistic of either employment or further education opportunities after graduation.

Faculty Patterns

Although we are strictly speaking in this paper interested only in college/university differences, a short word might be said summarising faculty differences in motive/strategy, as this is an issue of some intrinsic interest. Faculty differences (independently of institution) did not appear in instrumental or achievement motivation. With intrinsic motivation, however, Arts students were marginally higher than Education, and both considerably higher than Science. A similar pattern appeared on the cognate strategy, S_2. Science was appreciably higher than Arts and Education on both the reproducing and organising strategies. These patterns no doubt reflect the nature of the Science and Arts tasks. S_1 emphasises rote learning facts and details, which is quite essential in undergraduate Science when the student is faced with formulae and terms which simply have to be learned; S_3 emphasises organisation and scheduling, which is required in the longer hours and the routines required in the labs and pracs. S_2 emphasises meaning, and particularly through wide reading and discussion; these are clearly "verbal" activities which are more common in humanities-type courses.

This pattern is very similar to that described earlier by Biggs (1970), who found, in one Australian university, that Arts students were intrinsically motivated and less organised than Science; a pattern that was in this respect replicated in a Canadian sample (Biggs, 1976). Similarly, Watkins and Hattie (in press), working in a different Australian university, found (using an earlier version of the present SPQ) that Arts students were more likely to be more intrinsically motivated and to use the meaning strategy, whereas Science students were more instrumentally motivated and likely to use the reproducing strategy. The present findings, spread over five universities and nine CAEs, are very similar. The pattern thus seems to be a generalisable one.

SUMMARY, IMPLICATIONS AND CONCLUSION

College and University Student Differences

The findings of the present study reveal quite a coherent picture of motivational and strategy differences between college and university students. College students are higher in instrumental motivation and are more likely to agree that they use the reproducing strategy: that is, their aspirations are lower and more pragmatic, and study strategies are used that will gain the desired end of certification with minimum pain. "Excellence" is seen as being achieved through organisation, while intrinsic motivation is irrelevant to perceived excellence in males (but not in females). Achievement motivation, and the cognate strategy, organisation, are high in the first year in college, but the decline thereafter is rapid. Although college students perceive themselves as being equally as effective, relative to their peers, as do university students, they are overall more dissatisfied with their performance. The general picture -- given the findings in the affective domain of high instrumental motivation, originally high but declining achievement motivation, and general dissatisfaction -- is one of low morale. The fact that these data have been obtained over nine institutions in five states, and are consistent, suggests convincingly that they ought not to be explained away as being peculiar to one or a few institutions.

University students are overall more intrinsically motivated and more meaning-oriented in their study strategies, especially those planning to go on to research higher degrees and those who have not yet decided what to do after their first degrees. Excellence at university, whatever the faculty, is more related to intrinsic motivation than to an organised approach to study, although the latter is related to medium and above average functioning. Within this broad picture there are faculty differences; Science typically presenting an organised "hard-nosed" approach, with high achievement motivation and attention to both organising and reproducing strategies; Arts a more "academic" approach, with middling achievement and high intrinsic motivation and more use of the meaning strategy, Education is very similar to Arts, but with lower achievement motivation. Most Education students had Arts-type backgrounds; only 10% of the Dip.Ed. students had Science degrees, they conformed to the typical Science pattern (this analysis is not reported here).

In short, the Education students conformed to the pattern of their background discipline, except for the one factor of low achievement motivation. The last finding no doubt reflects the institutional fact that there is no pressure for high grades in the typical Dip.Ed. programme: many more subject units are ungraded than in undergraduate years; the course is terminal for the great majority; and (possibly most pertinent) job placement is virtually independent of level of performance in university.

Practical Implications

The present findings speak to two major practical issues of current concern:

(a) End-on Vs. Concurrent Teacher Education

The present data were not collected with this issue in mind and so any implications are inferential only.

It happened that all but a very small group in the university sample were in the end-on Dip.Ed.; contrariwise, the great majority of the CAE sample were in concurrent programmes. Differences in motive/strategy profiles between the two groups could thus be due to (i) maturity, the university students being two to three years older; (ii) general university/college factors, independently of the structure of the teacher education programmes in particular; (iii) concurrent/end-on differences themselves; and (iv) interaction between any or all of these factors.

The effects of maturity are in fact likely to be small. As seen in Figure 2, year does not produce general effects (those which do occur are limited to the college samples and are in the opposite direction). Also, as noted, the university Dip.Eds. resembled the degree patterns of undergraduates. The main differences, then, are due either to college-university factors; to end-on vs. concurrent programmes; or (more likely) to the interaction that may exist between both factors.

The basic data, however, are clear: as compared with college students (Dip. Teach., and B.Ed.) the motivation of university Dip.Ed. students is more intrinsic and less achievement based; and their study strategies are less reproductive and more organised. The college students are initially motivated by the desire to achieve, but for whatever reason this declines rapidly; and they endorse more extensive use of reproductive strategies. To sum up, the university teacher education student is more "academic" in the usual sense of the word: he is interested in his work and handles it with more appropriate learning strategies. Nevertheless one should, strictly speaking, have two further controls before generalising from these data: university graduates in a college Dip.Ed. and a university concurrent B.Ed.

That point is however "academic", in the other sense of the word. Neither group may be practically relevant. The Correy proposals (Correy, 1980) recommend that from 1987 only teachers with a concurrent teaching programme, or with a two year end-on programme, are to be employed in the public sector in NSW. If these recommendations are accepted, the one year end-on becomes a non-issue (whether taught by college or university), and many universities themselves will not, for their own internal political reasons, initiate concurrent B.Ed.-type programmes. This would leave the bulk of teacher preparation to concurrent programmes in the advanced education sector. If the addition of an extra fourth year to the advanced education Dip.Teach. does not alter the basic picture outlined here -- and extrapolating from Figure 2 to a 4th year would suggest that any change would be for the worse -- then many would find cause for concern on the basis of the present findings. The bulk of the teaching intake into (NSW) high schools would be of teachers who could appear to be relatively uninterested in their subject matter, prone to reproductive short-term learning (and presumably teaching) strategies, and dissatisfied with their own academic performance.

Such a picture does not inspire confidence. Assuming the validity of the present data, it would then seem essential that universities retain a place in teacher preparation at both subject discipline and Education levels. Either the Correy proposals should be rejected by the NSW State Government, or the universities themselves should move either towards two year end-on, or to four year concurrent programmes.

(b) Amalgamations Between Colleges and Universities

The pressure towards amalgamation is political; it has little to do with educational concerns. If the present findings, or any similar ones, cannot influence the basic decision whether or not to amalgamate, they might have some practical bearing on decisions about the forms that amalgamation might take.

Some forms of amalgamation involve essentially the "absorption", selective or otherwise, of advanced education functions into a university-type structure. It is fairly certain that such an absorption would have interactive and not merely additive effects. The final outcome would not merely be the average: a little less intrinsic motivation and meaning and organising strategies than in the university prior to amalgamation, a little less instrumental motivation and instrumental strategy than existed in the college. The outcome would depend on a host of organisational and educational factors, in particular on whether the function of advanced education were in fact preserved. It would be impossible to canvas all possibilities here and predict their outcomes.

Other forms of amalgamation involve protection of both university and advanced education functions by various "insulating" devices, which if successful may not result in any outcomes different from those observed here. Granted that some

form of insulation of university and advanced education takes place, then it would seem to be important not to relegate teacher education (whether concurrent or end-on) entirely to the advanced education structure within the amalgamated institution, as that may well reproduce the effects noted in this paper.

These results, then, confirm that each institution is attracting students with motives and strategies appropriate to the institution of their choice. The large question is whether the functions of academy and vocationalism can be preserved in an amalgamated structure without losing the best attributes of each. The case of teacher education is a particularly critical one. We have seen that the university environment attracts, shapes, or both, a more academically oriented teacher than does advanced education. The future of teacher education is, however, at risk: on the one hand by figures in the advanced education sector who would like to bring it under the control of the State Higher Education Board or its equivalent; and on the other by hard line academic elitists who for their own reasons would exclude teacher education from the university sector. The present data suggests that it would bode ill for secondary education if either side had their way.

CONCLUSION

It may be concluded that coherent profiles of motives and strategies can be distinguished between college and university students independently of faculty, and of faculty differences independently of institution. We concentrated here on the institutional differences, and it was found that they fitted the functions and organisation of universities and colleges respectively. Either through selection or direct influence, or both, universities contain more students who are intrinsically motivated and concerned about extracting maximum meaning from their studies in an organised way: this is highly compatible with the aims and functions of an institution that is concerned with teaching and researching in the basic disciplines for their own sake. CAEs, for their part, tend to contain more students who are instrumentally and pragmatically motivated, and who use reproductive strategies that are designed to cater for pass-only aspirations; this is also a pattern that is compatible with an institution that teaches terminal courses for vocational preparation and certification.

These data have some bearing on two current issues: teacher preparation, and university/college amalgamations. In particular, current profiles in both areas could bias future recruitment of high school teachers in a way that might cause some concern to those who hold particular views on the role of schools in transmitting academic values and an academic orientation to learn.

NOTES

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Increasing Personal Efficiency: A Case Study

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ABSTRACT

A case study demonstrating how a poorly functioning academic was helped to successfully re-organize his life and his work is described. More efficient management of time was the means through which this re-organization took place. Details of effective time-management techniques are given, together with data indicating the value of the approach in producing improved teaching and research performance.

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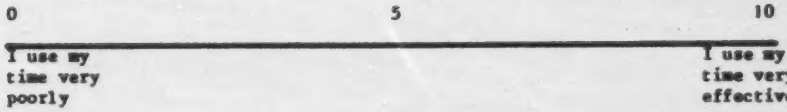
Many Universities and Colleges make some specific provision for the professional development of their staff. However, often the particular problem interfering with a staff member's efficiency lies outside the professional boundaries implicit in the activities of most Units. The problem is personal in nature, requiring, for its solution, more than advice on teaching and research procedures.

An illustrative case is that of John Royale, a lecturer at the University of Tasmania. Though the name I have used is fictitious, the actual person involved is real, and his problem is one with which many of us are familiar. John used time poorly. He never seemed to have enough time to do the things he wanted to do. Though a conscientious man, and one who wanted to do his job well, he did not present well prepared lectures. He would begin preparing his course carefully, but soon became increasingly pressurized by shortage of time. The result was poor preparation.

The same pattern was apparent in his research work. Though he worked hard in pursuance of his research goals, he published little. There never seemed enough time to do so. Yet, when he did have ample time available, he did not use it effectively.

John consulted me in my function as Director of the Higher Education Research and Advisory Centre (HERAC), asking for assistance in the preparation of his lectures. It became obvious this was not really the problem, and that he needed help in managing his life more efficiently. John realized this during our initial discussion and was more than willing to try anything which might help him achieve the things he wanted to do. He was not adverse either, to the idea that efficient time management would create for him additional leisure which he could choose to use in any way he desired.

During our first discussion, which took place in February, before commencement of the academic year, John rated himself on the simple self-report scale which is given below.



His self-rating was 3. Whether there is any "objective validity" in such a score is debatable, but probably irrelevant to the issue. John, whom we must presume knows himself better than anyone else could possibly know him, felt this to be an accurate estimate of how well or poorly he used his time. Therefore, it would seem to be an appropriate measure.

In the week which ensued before our second meeting, John kept a diary of all his activities, both at the University and at home. Though he claimed he behaved as usual during this week, it is likely that the very act of self-observation influenced his use of time. In fact, self-observation is the condition necessary if change is to take place. Until we become aware of our behaviour, our thoughts, our feelings, and our contradictions, we are full of "dark places" which prevent us modifying our behaviour. Self-observation lets light into these "dark places", helping us see things about ourselves which we did not even suspect existed. Armed with this new awareness, we can then attempt behavioural change, should we so desire. We may be unsuccessful in our attempts, of course, but without self-observation, we have no hope at all.

John's diary, recording a week of his life, was matched with five categories of time usage suggested by Bliss (1976);

1. Doing tasks which are both important and urgent
2. Doing tasks which are important but not urgent
3. Doing tasks which are urgent but not important
4. Busy work, which is marginally worth doing, but is neither important nor urgent
5. Wasting time, which brings no sense of satisfaction or accomplishment after the time has been spent.

The bulk of the entries fell into categories 1, 3 and 4. No entries could be

subsumed under the "important but not urgent" heading. According to Bliss, this makes John an ineffective individual because he is devoting too much time to items which are "urgent but not important" and to "busy work". Conversely, the effective individual, the one who manages his time well, allocates more time to items which are "important but not urgent". These are the things we want to do. They have value for us. Yet, because they are not urgent, because there is no one standing waiting for an answer, we put them off until we have more time. We never do have this time, of course. So John rarely created the time to prepare his lectures carefully, to pursue his research fully, and to write the articles which would advance his career.

It is one thing for John to receive confirmation that he uses his time poorly. He already knows that. It is quite another to do something about it. Bliss's formulation does, however, provide a starting point, for the categorization of John's diary entries suggest that he may not really "know" his goals. The reason he is not doing the "important but not urgent" things may be that he is not really sure what they are.

To help focus on what was important to him, John followed Lakein's(1974) simple method of goal clarification. Firstly, he spent two minutes answering the question: "What are my life time goals?" John wrote down anything that came into his mind in response to this question. Then, for another two minutes, he examined what he had written, perhaps making additions, deletions, and changes to his list. That is, he separated the process of idea generation from the process of idea evaluation. The value of this "brainstorming" technique is that it permits ideas to see the light of day without being too quickly squashed by premature analysis.

The same procedure was followed for two other questions: "How would I like to spend the next three (or five) years of my life?" and "If I knew now I would be struck dead in six months, how would I live till then?" Each question becomes more specific, which forces John to clarify in his own mind those things which are important to him.

Once he had his three answer lists complete, John checked back through each one, selecting, in order of priority, the three things which seemed most important. From these nine high priority items, John selected the top three. These constituted his primary goals in life. Only one of them related to his work situation. He wanted to be an excellent teacher. However, his number four goal was to achieve increased stature in his discipline, so this was included on the"most important" list.

With his goals clarified in this way, John planned his next week's programme so that he deliberately included specific activities which would advance him towards their achievement. These are the "important but not urgent" tasks which he had been neglecting. Now he intended to make time for these activities, downgrading "urgent but not important" tasks and "busy work" to do so. In Bliss's terms, by acting in this way, John transforming himself from an ineffective individual into an effective individual. Conceptualized in another way, he was now using time to achieve ends which he saw as important, instead of letting time use him.

In addition to clarifying the important goals in his life and deliberately planning weekly activities which would move him towards their attainment, John incorporated into his daily routines a number of techniques designed to help him use time more effectively than he had done in the past.

Each evening, John would prepare a plan for the following day. He was flexible about this, in that he left "holes" to accommodate the unexpected. However, he usually emphasized two or three major things he would like to accomplish. These were related to his goals, and included preparation of lectures, making audio-visual materials, organizing duplicated notes, planning the next stage in a research project, writing several paragraphs of a research report, planning an article, and consulting a specific reference source.

There is, of course nothing unusual about such tasks. All academics do them. The point is, how well do they do them? How long does it take to do them? Some academics spend hours and hours "getting around" to writing a report on their research. Others do the same thing in a fraction of the time. Whereas John previously fell into the former category, he was now moving towards the latter through use of simple time

saving techniques.

By planning a few major items, he gave directions to his day. However, he found that many of these tasks were rather lengthy, needing more time than was available in a single day. Where possible, he divided them into sections, taking each of these as an individual task.

Further, he listed his days' activities in order of priority. When he did this, he tried to stick with his number one item until he completed it. This was not always possible. Other events occurred which demanded immediate attention because they were important and urgent. However, by having a number one priority item, John provided himself with a focus. He knew the task he was to come back to, once he had handled the other pressing matters.

When he finished the number one priority, he struck it off his list with a sense of real achievement and moved on to number two. Making lists and setting priorities were two activities quite foreign to John's previous behaviour, yet they are the keys to the effective use of time. John certainly found this to be true for, by working in this way, he was now doing many "important but not urgent" tasks every week.

Another technique made a contribution out of all proportion to its simplicity. Before leaving his office at the end of the day, John cleared his desk of all clutter. The only item which remained was the particular task he wanted to work on the following day. All other material was either placed in appropriate files for later attention, or placed on a table well away from the desk. Thus, when John arrived in the morning he knew exactly what he wanted to do. By this one simple procedure he "saved" many hours. It is so easy to come in each morning, wonder what we should do first, have a cup of coffee, chat to a colleague, wonder some more, and finally get down to work an hour or two after our arrival. This pattern repeated throughout the years wastes months of our lives in indecision. By making our decision the previous evening and clearing away all distractions, we have no decision to make next morning. We start working instead.

To maximize the gains derived from the time he spent working, John used Lakein's 80/20 rule. Lakein has argued that, of all the things we do, 80% of the value comes from 20% of the tasks. Accordingly, it is an inefficient use of time to devote equal effort to each thing we do. Instead, most effort should be directed towards those tasks producing the greatest value. Through his earlier goal clarification exercise, John had identified these tasks so it became increasingly easy for him to do so.

A second aspect of Lakein's argument is that, on any one task, 80% of the value usually comes from the first 20% of the work done. As we engage in a certain piece of work, such as writing an article, we are subject to the law of diminishing returns. Most value comes from our planning and our initial attempt to put the appropriate words onto the paper. A second draft also contributes significantly to the worth of the final product. However, successive polishings and repolishings often lack such value, returning very little for the large investment of time.

Once he put this rule into practice, John found it much easier to write material for publication. No longer obsessed by the perfectionistic creed of "this must be a masterpiece", he simply let the words flow. This new approach was further reinforced by another key time saving technique - "do it now". Possibly the greatest of our self-imposed problems in using time efficiently is our procrastination. We see things which need doing, but put them off. As these mount up, we place ourselves under increasing pressure. Tasks which could have been done in a few minutes multiply until we are faced with a large burden which must be shifted. Academics constantly postpone preparing lectures and writing articles because they "don't feel like it" or because "inspiration has not struck". If we wait for things to be just right, we will find it very difficult to do such tasks.

That had been John's main problem. He would "get around to it later". Constantly procrastinating, he achieved little. Yet, by the simple device of telling himself "Do it now", he increased his output immensely. We are controlled, to a large extent, by the messages we give ourselves and, by changing this particular message, John was able to change his behaviour to a considerable extent. He still procrastinated at

times, but he did so far less than he had done previously. Thus, he relieved himself of pressure generated by things left undone, produced more work, and created increased leisure time for family activities.

Objective data are available indicating that John's changed behaviour led to improved functioning within the University. In the two years before he consulted me, John published two articles. The two years after he began using his time more efficiently saw nine such articles appearing in reputable journals.

Further, students rated his teaching more favourably. As the content of his courses remained approximately the same, before and after our discussions, it was possible to compare the ratings he received. On individual items such as "clarity of aims", "organization of material", "use of audio-visual materials", and "feedback on progress", John was evaluated more positively. It is interesting to note that these are items which, to a considerable extent, reflect care in preparation. The overall rating of his teaching performance, measured by the scale given below, also rose.

0	5	10
His teaching performance is extremely poor		His teaching performance is excellent

On this scale, the average pre-consultation score for his main course was 5.7. In the year following our discussions, the score rose to 7.2. This rating was maintained, 7.1, in the next year.

It would seem that students were able to detect an improvement in John's teaching. To some extent this was due to his improved preparation, but also, John felt, to his increased self-confidence. Because he knew he had devoted sufficient time to organizing his material and planning appropriate teaching methods, he displayed greater self-assurance and poise. Students were sensitive to this personal factor for he was rated more highly on "self-confidence" than had been the case in previous years.

It was not only I, then, who felt John had improved. His students confirmed this view. More importantly, John thought so, too. Six months after our discussions, he again filled in the simple self-rating "use of time" scale. This time, his score was 6, double the pre-consultation score. A further administration of the scale two years later produced a score of 7. This improved delayed score is particularly gratifying in that my aim in consultancy situations is to act as a catalyst, helping staff members to realize their potential for self-improvement. If I am successful in such endeavours, the academic no longer needs me but can continue to develop at his own pace.

John's case illustrates that improvement of a staff member's teaching and research performance may stem from insights into problems which are not strictly academic in nature. Time management, regarded highly in the business world, receives little attention in academia. Yet, as this article documents, it can be of considerable use in helping a staff member reorganize his life so he can function more effectively. Perhaps the counselling we provide in Professional Development Centres and Units should be more broadly based, embracing areas such as the efficient use of time. This is certainly an issue deserving of wider consideration.

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Learning to Teach

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ABSTRACT

Simon Prokhovnik retired last year after twenty-five years as a lecturer (and ultimately Associate-Professor) at the University of New South Wales. He suggests that University lecturing is an art whose successful practice demands imagination and scholarship, application and enthusiasm; and that the only venue for learning this art is in the University itself.

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INTRODUCTION

When John Powell invited me to write "a highly individualistic piece about teaching", I wondered at first whether my personal experience and opinions could possibly be of any interest or value. After all, I know from my perusal of education research journals that anything I can say about university teaching and testing has been said almost ad infinitum by the professionals working in this field.

So what can I say? Well, how does one learn to lecture? The practice and problems of university education are qualitatively different to those of primary or high schools. At universities we are supposed to encourage students to think for themselves, to try to work things out for themselves. The emphasis is supposed to be on learning and questioning for students as well as for staff - we are all scholars together, a community of scholars.

In practice, and particularly since universities have expanded to become a mass industry, this ideal extends only to a small elite of honours students in their final years and to postgraduate research students. The rest, the great majority of students, are offered facts and rules dictated in lectures and they are expected to regurgitate this information in examinations. Examinations are seen by students as ordeals to be suffered, as memory tests rather than as a spur to their learning. Such is the 'system' but it is tempered by its very size which harbours a great variety of temperaments and outlooks among its academic staff. The expansion of universities in recent decades has been accompanied by a great inflow of young lecturers and tutors who have often brought a fresh idealism and new approaches into the system. The universities and their students have benefited from this, though it must be admitted that most students are not greatly enamoured by attempts to modify the system: it is easier to take notes and exchange them for marks twice a year than to read, think, test, argue and learn.

Universities have no tradition or organisation for training prospective or very junior academics in the subtleties of their duties and responsibilities. They are appointed and promoted mainly on the basis of their research record and their capacity to communicate as evidenced in an interview. If they can demonstrate teaching or administrative capacity then this is noted with approval but these two skills are not given a high ranking in the criteria for academic advancement even though teaching and administration are admittedly vital aspects of university life. It is tacitly assumed that a person who has manifestly mastered a discipline is capable of communicating any aspect of it to peers and to students who may be interested. It is also assumed that such a person is capable of arguing a case at meetings and working with colleagues in the best interests of the University. In practice these assumptions are rarely vindicated. These days young appointees may be offered a brief formal introduction to their duties, but on the whole it is a case of sink or swim and most just about manage to float.

So do we need special tertiary teachers' colleges? Not necessarily: the potential academic meets the problems of tertiary education from his/her first day as a university student. The classroom, the laboratory, the library and students' organisations provide a lecturer's or tutor's college as well as a means of gaining education towards a degree.

THE UNIVERSITY AS ITS OWN TEACHERS' COLLEGE

I personally learnt much by negative example. Perhaps my most memorable lesson stemmed from an introductory course in organic chemistry. The young lecturer

entered the classroom briskly, opened a folder, and talked smoothly and rapidly for fifty minutes, pausing only to write on the blackboard occasionally. At the end of this time he departed just as briskly, his duty clearly done. The only trouble was that his discourse was devoid of reason or direction. Descriptions and equations followed one another in an apparently random sequence and statements appeared without evident support or connection. No pattern ever emerged from any lecture or from the whole course, and this in a subject whose basic structures form a comprehensive and elegant hierarchy as I ultimately discovered.

Such an experience was by no means unique. My lecturer in first year applied mathematics was an ancient professor (ancient in demeanour rather than age) who was barely audible and his board demonstrations were equally unintelligible. Fortunately the text-book was good and the problem sheets challenging so that a few of us made good progress in spite of the negative effect of the lectures. In another course (physics), the lecturer distributed excellent printed notes but then used his lectures to simply read them out - a sure way of producing boredom and restlessness - so that the classes fell away rapidly without, however, affecting the good examination results usual in this course.

There were many other courses in which the lectures were nearly as boring or confusing as in my most memorable examples above. One attended them to gauge the scope of a course, and because a young student fears to miss something of importance which may be announced or handed out in the lecture period. With greater experience and confidence I came to treat lectures with less reverence. In some courses I would attend only occasionally, relying mainly on textbooks, tutorials, laboratory work, library browsing and working out problems. In others I would attend every lecture without fail. I also reacted, perhaps only in my subconscious, by resolving that if I ever had to give a lecture or a course then I would avoid the obvious faults which marred so many university lectures.

What are these faults and why are university lectures so prone to them? I believe they are due basically to the following common attitudes and occupational hazards of the academic profession.

(1) The difficulty for a specialist to communicate at a level which a non-expert and often uninterested audience can comprehend. As tutors often find, the lecturer takes for granted those things which form a basic part of his/her thinking but which are quite invisible and thus incomprehensible to students.

(2) The annual repetition of courses makes life easier and can lead to more time for research and other activities. But it can also lead to the ossification of a course, and worse, to its appearing so to students who soon recognise an absence of spontaneity and enthusiasm.

(3) Lectures to large groups of 'pass' students are often seen as a simple but necessary chore requiring little preparation since the subject matter is on such an elementary (though fundamental!) level. Hence academics can easily develop, and worse, exhibit a casual attitude to such lectures.

These problems can be overcome if one is conscious of them, but that is only the beginning of the road to success. What sort of lecture makes a 'good' lecture? Are well-prepared and interesting lectures necessary or desirable if the role of a university is to foster self-learning skills rather than the memorising of imparted information? The answers to these questions were also provided by my undergraduate experiences, this time through positive examples. Two of these come clearly to mind: a course in physical chemistry and one in pure mathematics. In both of these the lecturer revealed verities and their applications in a manner which no text-book could possibly match. The use of the blackboard allowed a simultaneous appeal to the eyes, the ears and the fingers with the latter capturing the argument for future reflection. Each lecture centred round a specific theme which provided satisfaction in its own right yet related clearly to the whole course. As I also realised myself in later years, a lecturer can actively interact with his/her audience, can sense nuances of appreciation or incomprehension, can emphasise points and go over them with new examples or reconsider an argument in response to audience reaction. And finally, a stimulating lecture will often result in personal discussions with

individuals or groups of students who raise queries or comments arising out of a lecture. These post-lecture conversations are particularly valuable for both students and lecturer, and for the latter they provide further insights into the problems of communication.

The variety of approaches to lecturing which I experienced in my undergraduate days made me very conscious of different techniques employed to win and hold the attention of an audience. These include the need for careful planning and preparation, the importance of an interesting example or experiment to illuminate an argument, the benefit of a change in pace - say, from a formal stance in front of the board to an informal commentary away from one's notes. Such stratagems are the standard equipment of the professional lecturer (or successful politician) and they are indispensable for successful communication with groups of students. The lecture does have an important and unique role in opening up the minds of students and in stimulating their learning and questioning, but to fulfil this role is not a trivial or casual task particularly if one's audience runs into hundreds as is common these days (cf. Mackenzie et al., 1975).

POSTGRADUATE TRIAL AND ERROR

Of course, one's learning days do not stop with the achievement of a university degree. After graduating, I was a part-time mathematics tutor for many years whilst working in industry. Tutoring involves more direct reaction to students' needs and queries and more immediate person-to-person communication, so that if one has mastered the subject matter it is not such a difficult and sensitive task as is lecturing. However, a tutor does gain considerable insight, not only in regard to students' difficulties but also in regard to students' reactions to lecturers. Apart from their complaints, it is soon evident to a tutor if students are confused rather than informed by their lecturers, and garbled lecture-notes often reflect the mercurial mind of an academic who has failed to communicate with his class. If nothing else, my experience as a tutor convinced me that my own mixed feelings about university lecturers were shared by many students.

Before achieving a university lecturing appointment, I spent over two years at a high school as Mathematics Master. There I had to learn to teach at the secondary level and, although my previous experience was useful, I must admit that I was at first quite unprepared for problems relating to discipline rather than actual teaching - the need to gain the attention and respect of high-spirited youngsters most of whom were utterly uninterested in mathematics or even disliked it intensly for various reasons. The main lesson I learnt from my time as a high school teacher is that education is counter-productive if it involves compulsion. I do not propose to suggest a solution to this, though I think that it is instructive that 'mature-age' (which only means over 25!) students show a much better attitude to their studies than do most young post-matriculants drafted into universities and colleges often only to conform to the ambitions of their parents and to the pressures of our society.

My practical education as a lecturer started with my first full-time university post in 1955. Although I knew what I wanted to achieve, I had to learn, by experiment, observation and example from my colleagues, how to deal with different types of courses and with classes varying in size from three to five hundred.

Sometimes I learnt by accident. I particularly remember the occasion about 15 years ago when I entered my classroom confidently, opened my folder, and found myself gazing at the carefully-prepared notes - for a different course. I toyed momentarily with the idea of returning to my room to get the right folder but this would have taken a quarter of an hour, so I decided to attempt the lecture without any notes - a prop which I had always considered to be indispensable. To my surprise I found that I could clearly recollect and display the links of the argument as well as the illustrative examples which I had prepared for this class. As far

as I was concerned the only result of my mishap was perhaps a greater spontaneity in my performance and I do not think that my students noticed my initial consternation, nor any subsequent deviation from the norm.

The incident encouraged me to depend less on my notes when lecturing, though I never achieved the confidence of the professional public speaker who can hold forth at length without any visible means of support. It also encouraged me to seek and test other new ways of improving my communication with students, for example the use of the overhead projector which was then becoming standard equipment in lecture halls.

I continued to use the blackboard to present the successive links of an argument or the steps of a solution, but increasingly employed the overhead projector to display complicated diagrams and to enhance variety of presentation within a lecture. The concentration span of most students is far less than fifty minutes so the introduction of transparencies, slides, films and experiments, where appropriate, can be a great help.

My most important and radical innovation resulted from a chance conversation at a conference about a new approach to teaching known as the "Keller Plan" - a method of personalised education developed in America (originally in Brasilia) by F.S. Keller (1968). I felt that this approach could be useful for a third year mathematics course taken annually by about fifty chemical engineering students and I undertook to try it out with the help of a few colleagues and with the encouragement and support of our Tertiary Education Research Centre (T.E.R.C.). The initial preparation for this project required considerable thought and effort and involved close co-operation with colleagues in the School of Chemical Engineering. I was fortunate to obtain a small grant and so to gain the invaluable assistance and criticism of an enthusiastic graduate student of that School.

The Keller Plan allows students to proceed at their own pace, but requires that they achieve *mastery* of a section of the course before they proceed to the next section. What particularly attracted me to the 'Plan' is that students are invited to participate in the marking of their tests and so can defend their work in dialogue with the teacher-marker. These joint marking sessions have proved to be the most satisfying basis for the teaching-learning process in my experience. After eight years the value of this teaching experiment has more than proved itself (Prokhovnik, 1975; Barrett and Prokhovnik, 1980) and it is being successfully continued and further developed by my younger colleagues.

About two years before my retirement I found myself bored with the routine of my lectures to a large second-year class. This was a course offered to about 500 students which I had been organising for many years as well as being one of its lecturers and tutors. The course had changed little in recent years (except in its examining and assessment procedures), and I was beginning to feel that my lectures had got into a rut which was becoming visible to students, so I decided to rethink and compose afresh my presentation of this course. I found new examples, better ways of presenting my proofs, arguments and applications, and more dramatic ways of displaying them with the help of the overhead projector. The effort required for this revision might be considered excessive in the light of its brief subsequent use, particularly since my other duties and interests were more demanding than ever. However this effort was certainly worthwhile: it gave me tremendous satisfaction to see the course and the class come alive again, it taught me a lot more about teaching and mathematics, it showed me that learning to teach has its own rewards and pleasures and that one must never stop learning.

FINAL THOUGHTS

I have concentrated mainly on my experience as a university lecturer of mathematics, however, I believe that my experience has relevance to lecturing in most Schools and Departments of Australian universities. I could easily have said as much

about my other academic activities: the role of tutorials and the different ways of conducting them; University meetings, the problems of running courses, Schools and Faculties; the administration of the University and the roles of its Council and its Staff Association; my efforts to solve problems and understand theories; the art of communicating one's findings: the *paramount* importance of regular study leave for keeping research alive, and so on. Yet I am pleased to have had the opportunity to discuss, before all else, my attitude (as student and teacher) to lectures since I believe that this is still the weakest facet of our university work and that this weakness is mainly responsible for the apathy of many of our students.

It is widely held in senior academic circles that serious research informs and enlivens teaching. I think that in a general way this is probably true, but only in the sense that good research requires a high level of scholarship, and it is scholarship which enlivens and informs the good lecture. In order to understand and hence transmit the fundamentals (or their far-flung consequences) of a subject, in order to describe the bounds and limitations of our understanding, the lecturer must evidently be an enthusiastic scholar of that subject. It is almost a cliche that one has never understood a topic properly until one has delved into it deeply in order to explain it.

But scholarship is not the only necessary ingredient of a good lecture; it must be fired also by effort and capacity to communicate so that the ideas presented will stimulate students' thinking and activity.

I believe that the standard of lecturing has generally improved over the last forty years due in part, no doubt, to the efforts of centres like T.E.R.C., but the status of lecturing (compared to research) has remained low. So long as university teaching achievements remain unrecognised by promotion committees - brushed aside because they cannot be weighed or counted like research papers - there will be scant incentive to become a real 'lecturer' and teaching will remain the Cinderella of university activities.

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Some Alternative Entry Characteristics as Factors in Tertiary Success

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ABSTRACT

Students in the 1974 cohort at a college of advanced education were studied in an attempt to identify entry characteristics associated with the likelihood of graduating five years later. Those least likely to succeed had a low commitment to their course and were enrolled in a course quite different from their first preference. It is suggested that if such students can be identified and given assistance at the point of entry then graduation rates may be increased.

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The ability to predict eventual successful outcome at the point of tertiary entry, i.e. the ability to select students who will be most likely to graduate, has been the Will'o'the Wisp of educational researchers in Australia over the last few decades. This study falls into the ambit of the traditional search for predictions of tertiary performance based on correlations between entry characteristics and tertiary success but it is not confined to predictions based solely on scholastic achievement at school.

In Australia there have been few thoroughgoing follow up studies of success, failure and wastage in tertiary institutions. Thus in lieu of anything else, relative HSC success still continues to be the selector of school students into tertiary studies. This study looks at a rather broader approach to the identification of significant criteria for entry, by examining the graduation rates five years after entry of various category groups within the 1974 cohort of full time entrants to a Victorian CAE (N = 342). The paper describes the categories identified for the purpose of the study, looks at the graduation rate in each category and discusses the significance of these rates.

The nine categories were

1. HSC stream. Students from high and private schools whose entry credentials were the completion of HSC.

2. TOY stream. Students whose entry credentials were the completion of Tertiary Orientation Year, the sixth year of the secondary technical stream in Victoria at that time.

3. Sequential. Students proceeding sequentially from full time secondary education in the previous year.

4. Non sequential. Students who had not come from full time schooling in the previous year.

5. Early leavers. Students who were granted entry under special conditions as they had not completed a full secondary education.

6. Sequential failing students. Students who had come directly from full time secondary education and who had failed in their previous year's sixth form examinations.

7. "Category C". Students who, according to their responses on the questionnaire, had made the decision to pursue the course in which they were then enrolling within the month preceding enrolment, i.e. students who would appear to have had the weakest or shortest commitment to their course of study of all entering students.

8. "Gross discrepancy". Students whose eventual course of enrolment was judged to be grossly discrepant to that of their first choice of study as listed on their Victorian Universities Acceptance Committee (VUAC) application.

9. Female students. It is accepted that the graduation rate of women is of interest in an environment in which women have been considerably under-represented.

Clearly, the above are not exclusive categories. However, for the sake of this study they were dealt with as discrete subgroups.

Five years after enrolment the graduation rate of this cohort was 54%. The paper discusses the comparative significance of this figure and looks at the graduation rates of the nine categories. If the average chance of successful completion of a course of study is taken as 54% (i.e. the graduation rate for the whole number) then students who entered with TOY pass, HSC pass, who were female, who were non sequential, and who were early leavers had a better than average chance

of success, while those who were sequential, who were HSC failures, who were sequential failures, who exhibited gross discrepancy, who decided to enrol at the last minute, and who failed TOY had a less than average chance of success.

While some of these results confirm expectations and assumptions about the likelihood of a relationship between sixth form performance and tertiary success, and between non sequential entry and tertiary success, perhaps the most interesting outcome of the study is the tentative identification of categories of incoming students whose characteristics appear to lower the chance of tertiary success, or to predict non success. In this study the categories with the lowest rate of success were "Category C" which contained students with least commitment to their course of enrolment, and "Gross discrepancy", which contained students who accepted enrolment in a course quite different from that of their first choice. It is postulated that if these students can be identified and helped at the point of entry, then overall success rates may be improved in the future.

Full text available on application to the author.

NEW BOOKS

Review Article

Approaches to Student Learning Skills

Essay Writing for Students. John Clanchy and Brigid Ballard. Melbourne: Longman Cheshire, 1981, xi + 124 pp., $5.95.

Learning Skills: A Review of Needs and Services to University Students. J. Frederick, L. Hancock, B. James, J. Bowden and C. Macmillan. University of Melbourne, 1981, viii + 113 pp.

Teaching Students to Learn: A Student-Centred Approach. Graham Gibbs. Milton Keynes: Open University Press, x + 111 pp., £3.95.

Study Courses and Counselling: Problems & Possibilities. P. J. Hills (Ed.). Guildford: Society for Research into Higher Education, 1979, 132 pp., £6.60.

Personality and Academic Performance. Roger Holder and Janek Wankowski. Guildford: Society for Research into Higher Education, 1980, 103 pp., £8.60.

Helping Students to Learn at University. Kjell Raaheim and Janek Wankowski. Bergen: Sigma Forlag, 1981, 179 pp., £6.50.

Counselling interactions with university students suggest that a minority of students make rapid transitions to successful tertiary study with little or no difficulty. Established study competence, superior scholastic ability, temperamental predisposition, family support, subject content, and assistance by way of effective lecturing and tutoring appear to be some of the factors contributing to their success. For many others there is a progressive development of appropriate study approaches perhaps with the aid of departmental guidance and feedback, assignments of progressive difficulty in the early stages, and opportunities to perceive and rectify their own deficiencies. Their development or adaptation in study behaviour typically does not result solely from illuminative insights but requires to be built up. Many of these students respond actively to advice about approaches to study whether it comes from academics, fellow students, student counsellors, or elsewhere. Further towards the negative end of the continuum are students who in varying degree fail to adapt to their new tertiary status. Many factors may be associated with this, among them conflict of academic activities with other interests, fixation of study behaviours at low levels of productivity, personality predisposition, anxiety and lack of confidence in a new and relatively impersonal academic setting, the loss of emotional support from family or friends, unwise choice of tertiary course, perhaps a degree of academic "burnout" and the need for time for renewal, deficiencies in lecturing and tutoring, and so on.

The last decade has seen an increasing amount of literature of British origin devoted to the educational development of tertiary students. Publications, often by members of research and development units, lecturers and tutors, or counsellors have focused upon students' learning tasks and upon lecturers' and tutors' facilitation of learning. The publications under review are part of, or are consistent with, this thrust.

Of these publications Raaheim and Wankowski's Helping Students to Learn at University (a Norwegian publication) most consistently strives to provide for tertiary teachers a basis for understanding students, for becoming aware what factors condition the learning process and for optimising their own performance as facilitators of learning. Raaheim, on the basis of his experience as a tertiary teacher in Norway and observations made there and in England, poses questions and offers opinions especially for the teacher: suggestions about good teaching practices; observations on the characteristics of teachers as well as those of students, and on the poverty of psychological tests as predictors of performance. He provides an illustration of simple ways in which lecturers who are interested in their students' development (and who communicate this fact to students) can, by planning and assessing their own teaching and examining activities, produce improved student performance and perhaps increased insight into and improvement in their own performance. The approach of Wankowski, the major contributor, is much influenced by his experience as an educational psychologist and by statistical studies carried out in Birmingham relating students' success and failure to earlier school performance and to their performances in interviews and on questionnaires, including the Eysenck Personality Inventory. For Wankowski, a basic premise is that teaching and learning constitute "a continuous social interaction between individuals" (p. 151), in fact, an inter-reaction, a relationship of mutuality which is directed towards academic, emotional, social and economic goals of teachers, as well as learners. In the secondary school setting, students reward their teachers, while encouragement which students receive from their teachers "become[s], imperceptibly, the currency of emotional security" (p. 52) and a foundation for academic competence. In the tertiary setting this mutuality of interest and support is so greatly attenuated that for some students the "spark of awareness of inner strength" (p. 150) becomes extinguished. The formerly enchanted person, who is now being challenged to become an independent learner, instead may become disenchanted, bored, angry, depressed, experiencing a sudden discontinuity of learning competence. Naturally, reactions to the transition are as varied as individuals, but studies using the Eysenck Personality Inventory tend to show that educationally tractable people (G.G. Stern's term) score highly on both the factors of stability and introversion while academic vulnerability tends to accompany a combination of high extraversion and neuroticism scores. This is in fact a conclusion which is cautiously expressed in Holder and Wankowski's Personality and Academic Performance: "The formalized intellectual activity, such as tends to flourish in the sixth form and at the university, favours definitely, and not surprisingly, the sensitive, quiet, retiring, meticulous and systematic, socially coercible and hence relatively easily self-coerced and reliable introverts." (p. 73). These authors point out, however, that this statement is based upon the use of examination results as indicators of academic ability, whereas "We just don't know what kind of temperaments make for the most enterprising researchers or for the most stimulating university teachers." (p. 80).

Personality and Academic Performance presents detailed results of the extensive studies carried out at the University of Birmingham to explore relationships between results gained by students taking the Eysenck Personality Inventory, GCE "A" Level examinations and university examinations. About one third of the monograph is occupied by a historical introduction by Desmond Furneaux, himself an experienced investigator in the same area. An Appendix presents a case for establishing experimental study assistance centres in universities. Among the many detailed findings is the view "that students in courses with a 'theoretical' bias tend to be introverted, those in the more 'practically' biased courses tend to be extraverted and stable, whilst those in the 'people oriented' courses tend to be neurotic and extraverted." (p. 74). There are also indications of areas in which sex, social class, and type of secondary school attended have implications for survival at the tertiary level.

Gibbs' Teaching Students to Learn, a Student-Centred Approach presents a series of six exercises, each of an hour's duration, which can be used with groups of up to about forty tertiary students in the interests of enhancing their perception of their own study performance and their understanding of the nature of their learning tasks. The exercises encourage participants to become involved in, and to take responsibility for, a process of improvement. The writer invites readers to adapt and extend the exercises as they consider necessary. The exercises focus upon study process rather than content, and their strength derives from the products of group process as well as from structure and content supplied by the group leader. The exercises have been widely used and apparently well received. They are designed to encourage student-centred

self-directed learning. A rationale for the exercises is presented at length. The writer, one of the growing number who see little value in, and less justification for, typical study methods manuals, is, as a result of personal experience and the considerations of research evidence sensitive to variations in the nature of students' development as learners. It is Gibbs' view that "What is crucial to the development of students as learners is that new study skills are seldom learnt and employed to any useful end without first facilitating the development of students' conception of learning." (p. 83) "... I think there is a tendency to believe that to reorient students and to get them to adopt study techniques with purpose, all one has to do is mention purpose in passing, or simply tell students what purpose they must adopt .... students' orientation and understanding of purpose are deep-rooted, fundamental aspects of their approach to learning tasks which change slowly and with difficulty, and which can bring about disorienting consequences when they do develop and change ... And students need to develop a more sophisticated conception of learning or a more sophisticated epistemological stance in order to revise their sense of purpose" (p. 86).

Whereas each of the foregoing publications possesses a high degree of integration, Hills' Study Courses and Counselling: Problems & Possibilities , which has been reviewed in a recent volume of HERDSA News (Marshall 1979) and is briefly reviewed in Helping Students to Learn at University (pp. 115-156), is less so. It is indicative of the present level of progress in relation to study courses and counselling that the greater part of the monograph is taken up with "this is how I am trying to do it" articles written by capable and well-informed practitioners who describe their study skills workshops or counselling methods. We can all learn from someone else, and Hills' publication, though it lacks thrust as a reference for "all teachers in higher and further education" (p. 3) may inspire readers to further develop their own theories and practices. The obvious scarcity of sophisticated evaluative studies of learning skills courses and counselling may also incite those with a research bent to direct more of their energies to evaluation.

The basic psychologies which the writers of these four publications have found to be most useful in working with tertiary students are those which emphasize the importance of the person, for example, those of Rogers, Erikson, and Kelly. They therefore naturally give much consideration to the individuals who, as tertiary students, are in the process of becoming independent learners. For the same reason individual and small-group counselling receive much attention. If phenomenological and humanistic psychologies avoid the limitations of classical learning theories, their disadvantage is that they tend to provide general rather than specific guides for action. Gibbs, for example, indicates that he bases his approach upon sets of beliefs (p. 87).

But while the advice of study manuals based upon laboratory psychology is unlikely to be helpful to all students for all subjects, under all conditions of teaching and learning, broader approaches can be adapted to the myriad differences of human personality and circumstance. It is a strength of these approaches that they encourage tertiary lecturers and others to take account of the characteristics of each individual student, including students' purposes in learning. Such approaches also have potential for adaptation within a wide range of academic disciplines, in sharp contrast to the earlier study methods manuals. Additionally, the broader approaches are likely to provide more powerful bases for the enhancement of interaction between teacher and learner. It is not justifiable, however, to forsake the study skills catechism for a more visionary pursuit of educational development which has been subjected to no more than rudimentary evaluation. Opinions of the providers of learning assistance and expressed consumer satisfaction are not enough.

Learning Skills: A Review of Needs and Services to University Students by Frederick et al. is a report on a project carried out within the University of Melbourne. Happily, though it was intended in the first place for presentation within the University of Melbourne, it was decided to make it more widely available. In a two-year learning skills project a research study was combined with an extended service delivery. A learning skills counsellor, in collaboration with the Centre for the Study of Higher Education, provided individual and group assistance to students and a consultancy and workshops for staff, and developed resource materials. Studies of the experiences and attitudes of students and staff were also carried out. The writers claim that the exercise confirmed the value of the "whole person" approach in which students are assisted to build up a broad range of relevant learning skills rather than to improve

study skills in a segmental fashion. As a supplement to inquiries into consumer satisfaction and pre- and post-treatment results on the Brown-Holtzmann Survey of Study Habits and Attitudes, the consideration of student examination results produced some suggestion as to the value of the group learning skills programmes which formed part of the project.

Basic to the research is a viewpoint which has much in common with those of the four preceding publications. In addition to the value of its contents and the outreach activities it records, the report itself constitutes a very good example of an instrument designed to influence members of a university community.

Clanchy and Ballard's Essay Writing for Students is, by contrast, "a handbook in the craft of essay writing for tertiary students in Arts (Humanities) and Social Sciences students". Its treatment of the elements of essay writing is straightforward and sensible, its explanations and advice thoughtful. The writers know their topic well and are well aware of the individual differences between students who must write essays. Short illustrations make their points without taking the reader too much away from the text or focusing too much on specific content areas. Appendices include practice exercises as well as information on the stylistic conventions of academic writing.

Essay Writing for Students will be popular both for its acceptability among students - bearing in mind Gibbs' statement in Teaching Students to Learn, "I believe that quite often students do not follow advice simply because what is suggested sounds so unappealing" (p. 69) - and for the quality of its content.

In all of these publications is evidence of close acquaintance with the study problems encountered by tertiary students. If professional activity in this area still waits upon validation studies of procedures which are currently recommended or being developed, the publications nevertheless offer insightful comment and suggestions concerning the educational, psychological and social factors which bear upon the performance of students and their teachers. For their messages to be of optimal effectiveness, however, there remain two important allied areas in which advances are needed. In the first place, methods of selection for entry to tertiary study are at present no more than moderately successful, despite some decades of attempts to improve them. Secondly, there is scope for enormous improvement in the teaching component of the teaching-learning relationship, and for change in a reward system which perpetuates this deficiency.

Too often, books which have the potential to bring about incremental changes in the quality of tertiary teaching are read only by the converted. Again, their potential is generally opposed by the strongly established reward system. It is therefore of profound importance that change be made in the reward system. In Australia a working party of the Australian Vice-Chancellors' Committee has recently made recommendations which, if accepted, could lead to changes which could enormously facilitate the learning-teaching process while bringing to tertiary education the improvements in staff development which so many institutions have lacked (AV-CC Working Party, 1981). If its recommendations are widely adopted by Australian universities the publications here reviewed (in company with many others of similar intent) will hopefully become well known and used as stepping-off points by increasing numbers of tertiary teachers. That time is long overdue.

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Reviews

Developing Student Autonomy in Learning. David Boud (Ed.). London: Kogan Page, 1981, 222 pp., $31.

Emotions and Adult Learning. William S. More. London: Gower, 1981, ix + 180 pp., £7.50.

Independent Study: Two examples from English Higher Education. Keith Percy and Paul Ramsden. Guildford: Society for Research into Higher Education, 1980, 77 pp., £6.15.

On the next occasion that you are in a library, go to the section dealing with teaching and notice the shift over the last decade from titles containing the word 'teaching' to those that focus on the learning process. This change in focus of books written for those teaching in higher education reflects a greater understanding of the teaching/learning process in that it places the student centre stage rather than the teacher. Having recognised the importance of the student, one has taken a path that leads eventually to the acceptance of the individual needs of students.

The emphasis in our tertiary institutions on mass education ignores the concept of individual differences, and it has been only relatively recently that the individualised learning movement has arisen again. I say 'again' because the concept of students working alone and becoming 'independent learners' is not new.

Kimmers and Rennie in their book, The Triumph of the Dalton Plan, (1932) remind us that students working by themselves was a procedure followed in the old Parish Schools of Scotland. It is interesting to note that the authors saw, as a consequence of this procedure, those objectives which today we see as desirable outcomes of tertiary education.

> Nor is it an unlikely conjecture that the love of knowledge and learning for its own sake, so much more characteristic of the Scottish people than of the English, had its roots in this system of education. It is a common experience that what we find out for ourselves is what we are most interested in and remember the longest. (pp. 47-48)

A concept arising from these earlier writings is that, in talking about procedures such as independent learning, we are discussing vehicles for the curriculum. The question we do not tackle is whether the students' 'mental food' transported by this 'vehicle' satisfies the students' needs.

Independent Study, by Percy and Ramsden, describes how the 'vehicle' - independent study - operates within a typical tertiary institution, not intended either by design or philosophy to cater for individual differences. I found this the most interesting of the three books. It is practical and highlights many of the problems which arise when introducing innovation, particularly if such innovation calls for more of a sociological change than a curricula one.

The case studies discuss such major issues as student difficulty in learning how to use the system, staff difficulties in adjusting to their new role and, not least, the administrative difficulties of meeting institutional requirements.

A recurring theme is the feeling of isolation that many students experience when working in such programmes. 'A view expressed in all discussions was that students were experiencing a sense of isolation and unsureness because their work did not relate to other students' work.'

The importance of this is picked up by Jane Routh in Postscript 2, in her comment that 'a surprising number of difficulties' were overcome by the introduction of 'contact groups'.

Measuring the success of such programmes is never easy. In a recent paper, White (1981) suggests that 'until recently, studies of teaching methods were based on a two-part paradigm and consisted of measuring the effect on performance of variations in instruction' (p. 230). He goes on to trace the developing complexity of the teaching/learning paradigm to the stage where the interactive nature of the process is recognised in terms of interaction between student/teacher, process and content. In such a paradigm, the role of the emotions is seen as providing important input into the teaching/learning situation.

William S. More, in his book Emotions and Adult Learning, focuses on what has been a rather neglected area. In his opening paragraph the author, himself a tutor in a Polytechnic, illustrates how what we say can trigger off some kind of feeling. The case studies he presents illustrate how such emotions not only hinder teaching but block learning. As More admits, the topic is a 'hobby horse' and, unfortunately, he does oversell. It is interesting that, while the content of the book shows an understanding of the role played by the emotions, his style of communication is repetitive and, hence, causes adverse emotional responses. It is obvious from what he says that such responses are felt by his colleagues in the staffroom, who he feels have rejected him. This is a pity as I feel that what he has to say is worth listening to.

The first two books, with their simple and straightforward style, were clearly written for the lay educationalists - that is the majority of teachers in our tertiary institutions. This clarity of aim was lacking in the third book, Developing Student Autonomy, edited by David Boud.

Autonomy in learning is a challenge for both student and teacher. Students have to learn to set their own goals, think for themselves, and to control their own learning. Teachers, on the other hand, have to change their style, to recognise that the student's state is not one of 'innocence', nor is the student a 'passive receptacle'. While this book may be dealing with a 'new assumption about the purpose of education' (p. 8), the writers (teachers) have failed to change their style to meet this challenge. As a reader (learner), I found that, while I had an interest in the topic, the book failed to focus my attention on the real objective of the book. The first chapter, 'Toward Student Responsibility for Learning', was, for me, a rather tedious academic exercise. By the use of a liberal number of quotations, the author tries to 'sell' the idea of the need for student autonomy, but it lacks the conviction which is so evident in More's book.

Part 1 of the book was intended to deal with 'The Issues', but what are these issues? Having read this Part, I was still not at all clear as to what they were. It took the Percy and Ramsden book to bring them alive: the important issue of social factors; the frustrations experienced by teachers and students alike in learning to handle these new skills; the conservatism of academics and students; and the political climate of the institution that is seldom conducive to the introduction of radical change.

The case studies presented in Part 2 were more informative, and would be useful for the lecturer or tutor interested in using these procedures. However, it was the 'Putting into Practice' chapter by Cornwall that I felt made some effort to guide those teachers interested in promoting independent learning. I would recommend this chapter for would-be innovators.

These three books had one theme in common: the importance of meeting student needs. More's book on the emotions gives a basis for this theme, and the other two books consider the vehicle for achieving autonomy in learning.

Having myself introduced such courses and observed the emergence of what I believe to be a better product, I am nevertheless still haunted by a seed of doubt. Education reform has often thrown the baby out with the bathwater, and is this movement toward autonomy another example? We must consider student needs - of that I have no doubt - but should we also recognise the importance of these needs being balanced by the teachers' needs? As teachers, do we not have a responsibility toward our discipline?

We are tasked to prepare students for a qualification and, in some instances, for entry into a profession. Do these qualifications and professions have needs which must be considered in providing an education for the student?

Related to this is my second concern. These books have written at length on the 'vehicle' which we believe can help us achieve autonomous students. Seldom do teachers write explaining the rationale behind their selection of the mental food which students often find so indigestible.

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Browsings

There was a time when I read four or five books a day. Perhaps there were more good books being published then or, much more likely, academic life in those days offered richer opportunities for agreeably productive idleness. Reading about the work of others can be an indulgence, an apparently legitimate excuse for avoiding engagement in serious thinking. Sir Francis Bacon may have had that in mind when he wrote '... to spend too much time in studies is sloth.' The Oxford philosopher, Waismann, was once asked by a pupil for his opinion on a recent book and he replied: 'My friend Schlick used to read books and tell me what was in them, but he has been dead these many years.'

These are certainly not very exciting times for readers of books on higher education. The experience of reading a work which changes one's view of what education ought to be about is rarely encountered, despite the seemingly endless growth in the output of the world's presses. In order to make an impact upon our complacent and routine manner of thinking about and engaging in teaching and learning an author must speak to us in a direct, personal, self-revelatory and compelling fashion. This is a style which most writers on education appear studiously to avoid, preferring to conceal themselves behind a facade of abstractions and technical expressions.

As a student I recall being much influenced by R. Gerard Holmes's The Idiot Teacher. After thirty years this has now been reprinted by the Bertrand Russell Peace Foundation in Stockholm but efforts to obtain a copy have so far failed. There are some signs of a revival in the writing of more personal accounts of teaching. W.S. More's Emotions and Adult Learning (Saxon House, 1974) and the collection edited by D. Boud, Developing Student Autonomy in Learning (Kogan Page, 1981) would be two examples. These both offer highly personal accounts of approaches to teaching and learning and are thus apt to influence how we think about our own professional practice.

We continue to rely heavily upon lectures despite Dr. Johnson's observation that the invention of the printing press rendered them unnecessary. It may be that lecturing is one of the pathologies associated with membership of the academic profession. There is some support for this view to be found in the Encyclopedia of Aberrations, edited by E. Podolsky (Arco, 1953) which defines 'tachylogia' as 'unusually rapid talk as in states of nervousness or in mania.'

In pursuit of information on lecturing I consulted the ten volume International Encyclopedia of Higher Education, edited by A.S. Knowles (Jossey-Bass 1973) only to discover that the term did not even rate an entry in the index. The forthcoming International Encyclopedia of Education: Research and Studies, edited by T. Husen and T.N. Postlethwaite and to be published by Pergamon Press, is not even to include a section devoted solely to higher education. Lecturing is to be dealt with in the section which is concerned with educational technology: in our concern for scientism even talking to other people is to be converted into a technology.

The International Dictionary of Education, compiled by G. Terry Page and J.B. Thomas (Kogan Page, 1977), defines a lecture as a 'Teaching method in which facts or principles are presented orally to groups of students who take notes, have little or no participation in learning, and experience passive rather than active learning.' This would be hard to beat, apart from some redundancy, but the compilers go on to excel themselves in their account of 'parameter', one of the most abused words of recent

times. When seeking the meaning of 'Mistress of Method', however, I was instructed to see 'Master of Method.' Not surprisingly, there was no entry under 'Sexism.'

Those whose favourite bed-time reading is the list of the Cabmen of Huntingdonshire will be delighted with J. Train's Remarkable Names of Real People (Harvester Press, 1978). This is a treasure trove for those researchers who publish their findings under bogus names for who could hope to invent Charles Adolphe Faux-Pas Bidet, Thusnelda Neusbickle and Eucalyptus Yoho? Evidence that the book is being widely consulted may be seen in the recent publication of "The educational implications of variations in electrodermal responsivity among Alaskan clergymen, policemen and high school principals" by Gaston J. Feeblebunny.

J. P. Powell

PUBLICATIONS FROM

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